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-----Original Message-----

From: Vogel, Nancy
Sent: Friday, November 14, 2003 12:10 PM
To: STIC-ILL
Subject: sequence search 09/446,681

Please do a sequence search, including interference search, for nucleotide numbers **295 to 1450 of SEQ ID NO: 1** of 09/446,681 and return paper results to me ASAP

Thanks,
Nancy Vogel
Art Unit 1636
CM12 C01
(703) 308-4548

Searcher:_____
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Location:_____
Date Picked Up:_____
Date Completed:_____
Searcher Prep/Review:_____
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Online time:_____

TYPE OF SEARCH:
NA Sequences:_____
AA Sequences:_____
Structures:_____
Bibliographic:_____
Litigation:_____
Full text:_____
Patent Family:_____
Other:_____

VENDOR/COST (where applic.)
STN:_____
DIALOG:_____
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DRLink:_____
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Sequence Sys.:_____
WWW/Internet:_____
Other (specify):_____

09/446681
AA#14

1. Document ID: US 20010008770 A1

L3: Entry 1 of 28
File: PGPB
Jul 19, 2001

PGPUB-DOCUMENT-NUMBER: 20010008770
PGPUB-FILING-TYPE: new-utility
DOCUMENT-IDENTIFIER: US 20010008770 A1

TITLE: MICRO-ORGANISM WHICH CAN DESULPHURISE BENZOTHIOPHENES

PUBLICATION-DATE: July 19, 2001
US-CL-CURRENT: 435/262; 435/243

APPL-NO: 09/ 230658
DATE FILED: March 24, 1999
CONTINUED PROSECUTION APPLICATION: CPA

FOREIGN-APPL-PRIORITY-DATA:
COUNTRY
APPL-NO
DOC-ID
APPL-DATE
GB
9615928.0
1996GB-9615928.0
July 30, 1996

PCT-DATA:
APPL-NO
DATE-FILED
PUB-NO
PUB-DATE
371-DATE
102(E)-DATE
PCT/GB97/02055
Jul 30, 1997

IN: OLDFIELD, CHRISTOPHER

AB: The present invention provides a micro-organism which can desulphurise
benzothiophenes and a micro-organism which can desulphurise both venzothiophenes and
dibenzothiophenes and a process for the production of such organisms. Such organisms and/or
information derived from them can be used in devising a biocatalyst for desulplhurisation of
petrochemicals.

L3: Entry 1 of 28
File: PGPB
Jul 19, 2001

DOCUMENT-IDENTIFIER: US 20010008770 A1
TITLE: MICRO-ORGANISM WHICH CAN DESULPHURISE BENZOTHIOPHENES

DETX:
[0112] Li, M. Z., Squires, C. H. and Childs, J. D. (1996) Genetic analysis of the dsz promoter and
associated regulatory regions of Rhodococcus erythropolis IGTS8 J Bact 178, 6409-6418.

2. Document ID: US 6333401 B1

L3: Entry 2 of 28
File: USPT
Dec 25, 2001

US-PAT-NO: 6333401
DOCUMENT-IDENTIFIER: US 6333401 B1
TITLE: Phenol-induced proteins of Thauera aromatica
DATE-ISSUED: December 25, 2001

US-CL-CURRENT: 536/23.2; 435/252.3, 435/254.11, 435/325, 435/419

APPL-NO: 9/ 516914
DATE FILED: March 1, 2000

PARENT-CASE:
This application claims benefit of Provisional Application No. 60/122,952, filed Mar. 5, 1999.

IN: Fuchs; Georg, Breinig; Sabine

AB: This invention pertains to genes coding for phenol-induced proteins-Five
phenol-induced proteins isolated from Thauera aromatica. Three dominant phenol-induced proteins
called F1, F2, and F3 respectively were purified and sequenced to obtain the enzyme(s) that
catalyze the .sup.14 CO.sub.2 :4-hydroxybenzoate isotope exchange reaction and the
carboxylation of phenylphosphate. The N-terminal amino acid sequences of these proteins as well
as the N-terminus of the phenol-induced proteins (F4 and F5) were also determined.

L3: Entry 2 of 28
File: USPT
Dec 25, 2001

DOCUMENT-IDENTIFIER: US 6333401 B1
TITLE: Phenol-induced proteins of Thauera aromatica

DEPR:
Initiation control regions or promoters, which are useful to drive expression of the instant ORF's
in the desired host cell are numerous and familiar to those skilled in the art. A promoter capable
of driving these genes is suitable for the present invention including but not limited to CYC1,
HIS3, GAL1, GAL10, ADH1, PGK, PHO5, GAPDH, ADC1, TRP1, URA3, LEU2, ENO, TPI (useful for expression
in Saccharomyces); AOX1 (useful for expression in Pichia); and lac, trp, IP.sub.L, IP.sub.R, T7,
tac, and trc (useful for expression in Escherichia coli). Usefiul strong promoters may also be used
from Corynebacterium, Comamonas, Pseudomonas, and Rhodococcus.

3. Document ID: US 6133016 A

L3: Entry 3 of 28
File: USPT
Oct 17, 2000

US-PAT-NO: 6133016
DOCUMENT-IDENTIFIER: US 6133016 A
TITLE: Sphingomonas biodesulfurization catalyst

DATE-ISSUED: October 17, 2000

US-CL-CURRENT: 435/252.3; 435/189, 435/254.11, 435/320.1, 536/23.2

APPL-NO: 8/ 851089
DATE FILED: May 5, 1997

PARENT-CASE:
RELATED APPLICATIONS This application is a Continuation-in-part of Ser. No. 08/835,292, filed Apr.
7, 1997, now abandoned, the contents of which are incorporated herein by reference in their
entirety.

IN: Darzins; Aldis, Mrachko; Gregory T.

AB: The invention relates to a novel microorganism, designated Sphingomonas sp. strain
AD109, which is capable of selectively desulfurizing dibenzothiophene. The invention also
includes isolated proteins and nucleic acid sequences obtained from this microorganism. In
another embodiment, the invention provides a method of using this microorganism or enzyme
preparations derived therefrom in the biocatalytic desulfurization of a fossil fuel containing
organic sulfur compounds.

L3: Entry 3 of 28
File: USPT
Oct 17, 2000

DOCUMENT-IDENTIFIER: US 6133016 A
TITLE: Sphingomonas biodesulfurization catalyst

ORPL:
Li, M.Z. et al., "Genetic Analysis of the dsz Promoter and Associated Regulatory Regions of
Rhodococcus erythropolis IGTS8," J. Bacteriol., 178(22): 6409-6418 (Nov. 1996).

4. Document ID: US 6117658 A

L3: Entry 4 of 28
File: USPT
Sep 12, 2000

US-PAT-NO: 6117658
DOCUMENT-IDENTIFIER: US 6117658 A
TITLE: Methods of making polyhydroxyalkanoates comprising 4-hydroxybutyrate monomer units
DATE-ISSUED: September 12, 2000

US-CL-CURRENT: 435/135; 435/141, 435/146, 435/170

APPL-NO: 9/ 023029
DATE FILED: February 12, 1998

PARENT-CASE:
CROSS-REFERENCE TO RELATED APPLICATION This application claims the benefit of U.S. Provisional
Application No. 60/037,758, filed Feb. 13, 1997.

IN: Dennis; Douglas E., Valentin; Henry E.

AB: The PHA biosynthetic pathway is combined with a succinic semialdehyde metabolic
pathway that metabolizes succinic semialdehyde via a 4-hydroxybutyryl-CoA intermediate in order
to produce high levels of PHA comprising 4HB monomer units. This combination is particularly
useful, in part, because the PHA biosynthetic pathway is well known and has been expressed to
produce P(3HB) to levels as high as 70-80% of the cell dry weight, while the succinic
semialdehyde metabolic pathway is also well known, and the combination of the two pathways
means that production of PHAs comprising 4HB monomer units does not depend on immediate
precursors of 4-hydroxybutyrate. Rather, the production of the PHAs comprising 4HB monomer
units can occur simply from the extraction of succinate or succinyl-CoA from the citric acid
cycle when the host cell is grown on an inexpensive carbon source such as glucose.

L3: Entry 4 of 28
File: USPT
Sep 12, 2000

DOCUMENT-IDENTIFIER: US 6117658 A
TITLE: Methods of making polyhydroxyalkanoates comprising 4-hydroxybutyrate monomer units

BSPR:
In yet another aspect, the present invention provides a transgenic plant whose germ or somatic cells
contain at least one recombinant sequence that encodes a polyhydroxyalkanoate biosynthetic pathway,
and at least one sequence that encodes a succinic semialdehyde metabolic pathway that metabolizes
succinic semialdehyde via a 4-hydroxybutyryl-CoA intermediate. In a preferred embodiment, the plant
is Arabidopsis thaliana. In another preferred embodiment, the polyhydroxyalkanoate biosynthetic
pathway comprises a polyhydroxyalkanoate synthase from Nocardia corallina pha operably linked to a
promoter such that the gene is able to be expressed in the transgenic plant.

5. Document ID: US 6103508 A

L3: Entry 5 of 28
File: USPT
Aug 15, 2000

US-PAT-NO: 6103508
DOCUMENT-IDENTIFIER: US 6103508 A
TITLE: Method for removing fumarase activity, microorganisms obtainable by the method, and
production of optically active aminopolycarboxylic acids using the microorganisms
DATE-ISSUED: August 15, 2000

US-CL-CURRENT: 435/184; 435/106, 435/109, 435/116, 435/128, 435/800, 435/820, 435/822, 435/830,
435/848, 435/874

APPL-NO: 9/ 179966
DATE FILED: October 28, 1998

FOREIGN-APPL-PRIORITY-DATA:
COUNTRY
APPL-NO
APPL-DATE

JP

9-311046

October 28, 1997

IN: Kato; Mami, Kaneko; Makoto, Endo; Takakazu

AB: This invention relates to a method for removing fumarase activity from a microorganism or processed product thereof having ethylenediamine-N,N'-disuccinic acid ethylenediamine lyase activity, which includes treating the microorganism or processed product thereof with an aqueous alkaline solution at a pH of 8.0 to 10.5 in the presence of at least one salt with a concentration of 5 mM to 1000 mM. The salt is preferably selected from the group consisting of sodium, potassium, ammonium and C.sub.2-6 alkanediamine salts of boric acid, phosphoric acid, hydrochloric acid, sulfuric acid, acetic acid, oxalic acid, fumaric acid, maleic acid and ethylenediamine-N,N'-disuccinic acid, and mixtures thereof. This invention also relates to a microorganism or processed product thereof having reduced fumarase activity obtainable by the above described method, and to a method for producing an optically active aminopolycarboxylic acid from fumaric acid and a compound having amino group in the presence of the microorganim or processed product thereof having reduced fumarase activity as a catalyst.

L3: Entry 5 of 28

File: USPT

Aug 15, 2000

DOCUMENT-IDENTIFIER: US 6103508 A
TITLE: Method for removing fumarase activity, microorganisms obtainable by the method, and production of optically active aminopolycarboxylic acids using the microorganisms

DEPR:
To 2 .mu.l of plasmid pEDS020 obtained in Step (10), 2 .mu.l of 10.times. restriction enzyme reaction buffer, 15 .mu.l of sterilized water, 1 .mu.l of restriction enzyme XhoI are added, and the mixture is reacted at 37.degree. C. for 2 hours. The plasmid is recovered by ethanol precipitation and dried, to which 15 .mu.l of sterilized water, 2 .mu.l of a 10.times. klenow fragment buffer, 2 .mu.l of a 10 mM dNTP's solution and 1 .mu.l of a klenow fragment are added, followed by 2-hour reaction at 37.degree. C. The DNA fragment is recovered by ethanol precipitation and dried, to which are added 8 .mu.l of sterilized water, 1 .mu.l of XbaI linker solution, and 16 .mu.l of Solution A and 4 .mu.l of Solution B both from Ligation kit (Takara Shuzo Co., Ltd.). The mixture is reacted at 16.degree. C. for 4 hours. After transformation into JM109, a plasmid is obtained from the transformant, the plasmid having a change of the XhoI site of pEDS020 to XbaI site. To 2 .mu.l of the obtained plasmid are added 2 .mu.l of 10.times. restriction enzyme reaction buffer, 15 .mu.l of sterilized water and 1 .mu.l of restriction enzyme EcoRV, and the mixture is reacted at 37.degree. C. for 2 hours. The DNA fragment is recovered by ethanol precipitation and dried. Then, 8 .mu.l of sterilized water, 1 .mu.l of Sse8387I linker solution, and 16 .mu.l of Solution A and 4 .mu.l of Solution B both from Ligation kit (Takara Shuzo Co., Ltd.) are added to the dried DNA, and the mixture is reacted at 16.degree. C. for 4 hours and transformed into JM109. From the transformant, the plasmid pEDS027 is obtained which has a change of generally EcoRV site to Sse8387I site. To 2 .mu.l of the thus-obtained plasmid are added 2 .mu.l of 10.times. restriction enzyme reaction buffer, 14 .mu.l of sterilized water, 1 .mu.l of restriction enzyme XbaI and 1 .mu.l of Sse8387I, and the mixture is reacted at 37.degree. C. for 2 hours. A 1.7 Kb band is separated from the reaction mixuture by agarose gel electrophoresis, which is then inserted into the XbaI-Sse8387I site of;plasmid pSJ034 having a strong Rhodococcus promoter activity, thereby producing the transformant plasmid pSE001 (FIG. 5). The plasmid pSJ034 is prepared from the plasmid pSJ023 (Japanese Patent Application No. 9-65618) by the procedure shown in FIG. 6. The plasmid pSJ023 was deposited with the National Institute of Bioscience and Human-Technology, Agency of Industrial Science and Technology, MITI (Japan) as transformant Rhodococcoccus rhodochrous ATCC12674/pSJ023 (FERM P-16108) on Mar. 4, 1997 which was subsequently transferred to the international deposition as FERM BP-6232 on Jan. 21, 1998.

6. Document ID: US 6071738 A

L3: Entry 6 of 28

File: USPT

Jun 6, 2000

US-PAT-NO: 6071738
DOCUMENT-IDENTIFIER: US 6071738 A
TITLE: Conversion of organosulfur compounds to oxyorganosulfur compounds for desulfurization of fossil fuels
DATE-ISSUED: June 6, 2000

US-CL-CURRENT: 435/282; 435/130, 435/281

APPL-NO: 8/ 933885
DATE FILED: September 19, 1997

IN: Johnson; Steven W., Monticello; Daniel J., Hazan; Charles, Colin; Jean-Michel

AB: The present invention relates to a method for the desulfurization of a fossil fuel containing one or more organosulfur compounds. In one embodiment, the method comprises the steps of (1) contacting the fossil, fuel with a biocatalyst capable of converting the organosulfur compound to an oxyorganosulfur compound which is separable from the fossil fuel; and (2) separating the oxyorganosulfur compound from the fossil fuel. The oxyorganosulfur compound can then be isolated, discarded or further processed, for example, via desulfurization by a biocatalyzed process or an abiotic process, such as hydrodesulfurization.

L3: Entry 6 of 28

File: USPT

Jun 6, 2000

DOCUMENT-IDENTIFIER: US 6071738 A
TITLE: Conversion of organosulfur compounds to oxyorganosulfur

compounds for desulfurization of
fossil fuels

ORPL:
Li, M.Z. et al., "Genetic Analysis of the dsz Promoter and Associated Regulatory Regions of
Rhodococcus erythropolis IGTS8," J. Bacteriol., 178(22): 6409-6418 (Nov. 1996).

7. Document ID: US 5985560 A

L3: Entry 7 of 28

File: USPT

Nov 16, 1999

US-PAT-NO: 5985560
DOCUMENT-IDENTIFIER: US 5985560 A
TITLE: Cloning vector and a process for the preparation thereof
DATE-ISSUED: November 16, 1999

US-CL-CURRENT: 435/6; 435/252.3, 435/320.1, 435/440, 435/69.1, 435/91.4, 435/91.41, 435/91.42

APPL-NO: 8/ 853097
DATE FILED: May 8, 1997

IN: Lal; Rup

AB: This invention relates to a method for the preparation of a series of cloning
vectors and such cloning vectors prepared therefrom. The method consists in the step of
digestion of pRL1 derivative with a restriction enzyme BamHI and digesting the pIJ4026 by BglII
and electroeluting the ermE gene. The linear DNA having pRL1 derivative is ligated with ermE
gene and then transformed into E. coli GM2163. The transformants are screened for the presence
of concatamers and that concatamers of pRL50 and pRL80 DNAs being isolated from E. coli. The
transformants are selected under appropriate antibiotic selection pressure.

L3: Entry 7 of 28

File: USPT

Nov 16, 1999

DOCUMENT-IDENTIFIER: US 5985560 A
TITLE: Cloning vector and a process for the preparation thereof

ORPL:
Kumar et al. Efficient transformation of the cephamyin C producer Nocardia lactamdurans and
development of shuttle and promoter-probe cloning vectors. Applied and Environmental Microbiology
vol. 60 pp. 4086-4093, 1994.

8. Document ID: US 5879914 A

L3: Entry 8 of 28

File: USPT

Mar 9, 1999

US-PAT-NO: 5879914
DOCUMENT-IDENTIFIER: US 5879914 A
TITLE: Recombinant DNA encoding a desulfurization biocatalyst
DATE-ISSUED: March 9, 1999

US-CL-CURRENT: 435/130; 435/189, 435/232, 435/252.3, 435/320.1, 536/23.2

APPL-NO: 8/ 421791
DATE FILED: April 14, 1995

PARENT-CASE:
RELATED APPLICATION This application is a division of application Ser. No. 08/304,081 filed Sep. 1,
1994, which is a Divisional of Ser. No. 08/089,755 filed Jul. 9, 1993 now U.S. Pat. No. 5,356,801,
which is a Continuation-In-Part of Ser. No. 07/911,845 filed Jul. 10, 1992 now abandoned.

IN: Rambosek; John, Piddington; Chris S., Kovacevich; Brian R., Young; Kevin D., Denome;
Sylvia A.

AB: This invention relates to recombinant DNA molecule containing a gene or genes which
encode a biocatalyst capable of desulfurizing a fossil fuel which contains organic sulfur
molecules. For example, the present invention encompasses a recombinant DNA molecule containing
a gene or genes of a strain of Rhodococcus rhodochrous.

L3: Entry 8 of 28

File: USPT

Mar 9, 1999

DOCUMENT-IDENTIFIER: US 5879914 A
TITLE: Recombinant DNA encoding a desulfurization biocatalyst

DEPR:
Amplification yielded the predicted 2846 bp fragment. In order to express the amplified fragment
harboring ORFs 2 and 3, it was ligated to the XbaI/EcoRI fragment of the chloramphenicol resistance
gene promoter from Rhodococcus fascians (Desomer et al.: Molecular Microbiology (1992) 6 (16),
2377-2385) to give plasmid pOTTO-1. Ultimately, a blunt end ligation was used for the subcloning of
the amplified product due to the fact that ligation using the engineered restriction sites was
unsuccessful. This fusion was ligated to shuttle-vector pRR-6 to produce plasmid pENOK-20. CPE648
transformants of pENOK-20 were grown in the presence of DBT and 25 Mg/ml chloramphenicol for
promoter induction. All transformants converted DBT to DBT-sulfone presumably through the activity
of the ORF 3 as demonstrated in subclone pENOK-3. The inability to further process DBT-sulfone with
the presence of ORF 2 suggests that the product of ORF 2 alone is incapable of using DBT-sulfone as
a substrate. This is consistant with results obtained from pENOK-Nsi, and suggests that ORF-2 alone
is incapable of using DBT-sulfone as a substrate.

DEPR:
Increasing the specific activity of desulfurization is a significant objective of the studies
described herein. One approach to accomplishing this goal is to replace the original promoter with
one that can produce both higher and constitutive expression of the desulfurization gene cluster.
Because there are so few reported and characterized Rhodococcus

promoters, random genomic libraries
have been prepared and screened for promoter activity in two systems. In one, the reporter is the
chloramphenicol resistance gene used in the above-discussed plasmid constructions. In the other, the
desulfurization cluster itself is used as a reporter.

DEPR:
As also described below, partially digested Rhodococcus genomic DNA has been cloned upstream of a
promoterless chloramphenicol resistance gene. The resulting libraries were then transformed into
Rhodococcus which are subjected to chloramphenicol selection. Four apparent promoter elements were
rescued by pRHODOPRO-2, although plasmid could be isolated from only one of these, possibly due to
vector instability. The stable plasmid RP2-2A has been subjected to sequence analysis. Technical
problems have been observed with restriction enzyme treatment of the NarI cloning site used in these
vectors. Unfortunately, the NarI enzyme demonstrates severe site-selectivity and does not appear to
digest the vector well. New vectors have been constructed in order to alleviate this problem,
although a lack of convenient and unique restriction sites slowed the progress of these studies. A
recent observation on the Rhodococcus replication origin will aid in constructing a more effective
promoter probe, as discussed below.

DEPR:
Examples of potential alternative promoters include other known and described promoters such as the
chloramphenicol resistance gene promoter from Rhodococcus fascians (Desomer et al.: Molecular
Microbiology (1992) 6 (16), 2377-2385), the nitrile hydratase gene promoter from Rhodococcus
rhodochrous (Kobayashi, et al.: Biochimica et Biophysica Acta, 1129 (1991) 23-33), or other strong
promoters isolated from Rhodococcus sp. by "shot-gun" promoter probing. Other potential alternative
promoters include those from other Gram positive organisms such as Corynebacterium, Bacillus,
Streptomyces, and the like.

DEPR:
Each ORF has been successfully amplified and subcloned into pUC-19 NdeI as EcoRI fragments.
Alternative promoters will be ligated into the unique NdeI sites, and the fusions will be moved to
Rhodococcus-E. coli shuttle vector pRR-6 for expression in Rhodococcus.

DEPL:
Expression from the chloramphenicol resistance gene promoter from Rhodococcus fascians.

9. Document ID: US 5830693 A

L3: Entry 9 of 28 File: USPT Nov 3, 1998

US-PAT-NO: 5830693
DOCUMENT-IDENTIFIER: US 5830693 A
TITLE: Gene encoding a regulatory factor involved in activating expression of the nitrilase gene
promoter
DATE-ISSUED: November 3, 1998

US-CL-CURRENT: 435/69.1; 435/136, 435/169, 435/227, 435/252.3, 435/320.1, 435/71.2, 530/350, 536/23.1, 536/23.74

APPL-NO: 8/ 683908
DATE FILED: July 19, 1996

FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	APPL-DATE
JP	7-185626	July 21, 1995

IN: Shimizu; Sakayu, Kobayashi; Michihiko

AB: The invention relates to a regulatory factor substantially containing an amino acid
sequence represented by SEQ ID NO:1 and having the action of activating a nitrilase gene
promoter, a regulatory factor gene containing DNA coding substantially for said regulatory
factor, a recombinant plasmid containing said regulatory factor gene, a nitrilase gene
containing a promoter region and a DNA region capable of replicating in a microorganism
belonging to the genus Rhodococcus, and a transformant transformed with said recombinant
plasmid.

L3: Entry 9 of 28 File: USPT Nov 3, 1998

DOCUMENT-IDENTIFIER: US 5830693 A
TITLE: Gene encoding a regulatory factor involved in activating expression of the nitrilase gene
promoter

ABPL:
The invention relates to a regulatory factor substantially containing an amino acid sequence
represented by SEQ ID NO:1 and having the action of activating a nitrilase gene promoter, a
regulatory factor gene containing DNA coding substantially for said regulatory factor, a recombinant
plasmid containing said regulatory factor gene, a nitrilase gene containing a promoter region and a
DNA region capable of replicating in a microorganism belonging to the genus Rhodococcus, and a
transformant transformed with said recombinant plasmid.

BSPR:
The present invention relates to a regulatory factor involved in expression of a nitrilase gene as
well as to DNA coding for said regulatory factor. In particular, the present invention relates to a
regulatory factor derived from Rhodococcus rhodochrous J1 and having the action of activating a
nitrilase gene promoter, a recombinant plasmid containing DNA coding for said regulatory factor, a
nitrilase gene promoter and a nitrilase gene, and a transformant transformed with said recombinant
plasmid.

BSPR:
In order to prepare a microorganism as a catalyst having higher catalytic activity, the present
inventors cloned a nitrilase gene from Rhodococcus rhodochrous J1 and constructed a plasmid by
inserting the gene to a region downstream of E. coli lactose promoter (J. Biol. Chem. 267,
20746-20751 (1992)). E. coli into which said plasmid had been introduced exhibited higher nitrilase

activity when cultured in the presence of IPTG (isopropyl-.beta.-D-thiogalactoside).

BSPR:
The object of the present invention is to provide a regulatory factor derived from Rhodococcus rhodochrous J1 and having the action of activating a nitrilase gene promoter, a recombinant plasmid containing DNA coding for said regulatory factor, a nitrilase gene promoter and a nitrilase gene, and a transformant transformed with said recombinant plasmid.

BSPR:
The present inventors speculated that the reason the gene is not expressed by the transformant derived from the genus Rhodococcus is that the promoter for the nitrilase gene fails to function because the transformant does not carry a gene coding for a regulatory factor necessary for functioning of the promoter. Hence, they thought that a gene coding for such regulatory factor is present somewhere in chromosomal DNA from the J1 strain and found the gene located downstream of the nitrilase structural gene. As a result of preparation of a transformant belonging to the genus Rhodococcus carrying this gene, the transformant could successfully express nitrilase with high activity.

BSPR:
Further, the present invention is a recombinant plasmid containing said regulatory factor gene, a nitrilase gene containing a promoter region, and a DNA region capable of replicating in a microorganism belonging to the genus Rhodococcus. As the DNA region capable of replicating in a microorganism belonging to the genus Rhodococcus, mention may be made of a member selected from a group consisting of plasmids pRC001, pRC002, pRC003 and pRC004.

CLPR:
11. A method of activating a nitrilase gene promoter for expression of nitrilase enzyme in a Rhodococcus host cell the method comprising transforming said host cell with the plasmid of any one of claims 6, 7 or 8 culturing the transformed cells in the presence of isovaleronitrile such that the regulatory factor is expressed and activates the nitrilase gene promoter resulting in expression of the nitrilase enzyme in the host cell.

10. Document ID: US 5683913 A

L3: Entry 10 of 28 File: USPT Nov 4, 1997

US-PAT-NO: 5683913
DOCUMENT-IDENTIFIER: US 5683913 A
TITLE: Regulatory gene for the expression of nitrile hydratase gene
DATE-ISSUED: November 4, 1997

US-CL-CURRENT: 435/252.3; 435/254.11, 435/320.1, 435/325, 536/23.7

APPL-NO: 8/ 537434
DATE FILED: October 2, 1995

FOREIGN-APPL-PRIORITY-DATA:
COUNTRY APPL-NO APPL-DATE
JP 6-239263 October 3, 1994

IN: Shimizu; Sakayu, Kobayashi; Michihiko

AB: The invention relates to a regulatory gene coding for a polypeptide having the ability to activate a promoter for a nitrile hydratase gene, a recombinant DNA containing said regulatory gene, and a transformant transformed with said recombinant DNA., The introduction of the regulatory gene of the invention along with a nitrile hydratase gene and its promoter region permits bacteria of the genus Rhodococcus to produce a higher level of nitrile hydratase. Other extraneous gene can also be introduced into a region downstream of the promoter to produce other proteins in high yield.

L3: Entry 10 of 28 File: USPT Nov 4, 1997

DOCUMENT-IDENTIFIER: US 5683913 A
TITLE: Regulatory gene for the expression of nitrile hydratase gene

ABPL:
The introduction of the regulatory gene of the invention along with a nitrile hydratase gene and its promoter region permits bacteria of the genus Rhodococcus to produce a higher level of nitrile hydratase. Other extraneous gene can also be introduced into a region downstream of the promoter to produce other proteins in high yield.

BSPR:
The present invention relates to a regulatory gene derived from bacteria of the genus Rhodococcus and coding for a polypeptide capable of activating a promoter for a nitrile hydratase gene, a recombinant DNA containing said DNA, and a transformant transformed with said recombinant DNA.

BSPR:
That is, the present invention relates to a regulatory gene derived from bacteria of the genus Rhodococcus and coding for a polypeptide capable of activating a promoter for the nitrile hydratase gene, a recombinant DNA containing said DNA, and a transformant transformed with said recombinant DNA.

DEPR:
The introduction of the regulatory gene of the invention along with the nitrile hydratase gene and its promoter region permits bacteria of the genus Rhodococcus to produce a higher level of nitrile hydratase. Other extraneous gene can also be introduced into a region downstream of the promoter to produce other proteins in high yield.

11. Document ID: US 5602014 A

L3: Entry 11 of 28 File: USPT

Feb 11, 1997

US-PAT-NO: 5602014
DOCUMENT-IDENTIFIER: US 5602014 A
TITLE: Regulatory system for expression of nitrilase gene
DATE-ISSUED: February 11, 1997

US-CL-CURRENT: 435/129; 435/252.3, 435/320.1, 435/69.1, 536/23.7

APPL-NO: 8/ 577184
DATE FILED: December 22, 1995

FOREIGN-APPL-PRIORITY-DATA:
COUNTRY
APPL-NO
APPL-DATE
JP
6-337652
December 28, 1994

IN: Mizumura; Yurie, Yu; Fujio

AB: The invention relates to a regulatory factor or system composed of 2 components of a polypeptide having the amino acid sequence of SEQ ID No:1 and a polypeptide having the amino acid sequence of SEQ ID No:2 to activate a nitrilase gene promoter, as well as to DNA coding therefor. Nitrilase can be produced by introducing the gene coding for the present regulatory factor together with a nitrilase gene containing a promoter region into a microorganism of the genus Rhodococcus.

L3: Entry 11 of 28
File: USPT
Feb 11, 1997

DOCUMENT-IDENTIFIER: US 5602014 A
TITLE: Regulatory system for expression of nitrilase gene

ABPL:
The invention relates to a regulatory factor or system composed of 2 components of a polypeptide having the amino acid sequence of SEQ ID No:1 and a polypeptide having the amino acid sequence of SEQ ID No:2 to activate a nitrilase gene promoter, as well as to DNA coding therefor. Nitrilase can be produced by introducing the gene coding for the present regulatory factor together with a nitrilase gene containing a promoter region into a microorganism of the genus Rhodococcus.

BSPR:
The present invention relates to a regulatory factor involved in expression of a nitrilase gene and a DNA coding for the same and particularly to a regulatory factor derived from the strain Rhodococcus erythropolis SK92 and activating a nitrilase gene promoter, as well as to DNAs coding for the same, a recombinant plasmid containing the DNAs and a transformant transformed with said recombinant plasmid.

BSPR:
As compared with the above-mentioned conventional processes, the use of a nitrilase gene cloned for hydrolysis of nitriles by genetic recombination is expected to drastically improve the catalytic ability of the microorganism to hydrate nitriles because the microorganism can be engineered to contain multiple copies of the same gene. To obtain such a catalyst organism with higher catalytic activity, the present inventors successfully cloned a nitrilase gene from the strain Rhodococcus erythropolis SK92 and constructed a plasmid by inserting said gene into a region downstream of an E. coli lactose promoter. By introducing this plasmid into E. coli, the organism came to exhibit higher nitrilase activity during incubation in the presence of IPTG isopropyl-.beta.-D-thiogalactoside).
The present inventors further attempted to obtain a transformant of the genus Rhodococcus to attain higher performance as a catalyst organism. In this attempt, the nitrilase gene was inserted into a Rhodococcus-E. coli hybrid plasmid vector (see Japanese Laid-Open Patent Publication Nos. 4,589/1993 and 68,566/1993), and the vector thus constructed was introduced into a microorganism of the genus Rhodococcus. However, no nitrilase activity was expressed, and there is demand for a method of permitting the expression of nitrilase activity in a transformant of the genus Rhodococcus.

BSPR:
The present inventors speculated that the gene derived from the genus Rhodococcus is not expressed because the promoter for the nitrilase gene fails to function, and that a gene coding for a regulatory factor that allows the promoter to function might be present somewhere on the chromosomal DNA derived from SK92. Through screening, the present inventors found it in a region upstream of the nitrilase structural gene and succeeded thereby in expression of nitrilase activity in a transformant of the genus Rhodococcus.

BSPR:
Introduction of the gene or genes coding for the regulatory factor of the invention along with the nitrilase gene containing its promoter permits microorganism of the genus Rhodococcus to produce nitrilase.

12. Document ID: US 5578478 A

L3: Entry 12 of 28
File: USPT
Nov 26, 1996

US-PAT-NO: 5578478
DOCUMENT-IDENTIFIER: US 5578478 A
TITLE: Recombinant DNA encoding a desulfurization biocatalyst
DATE-ISSUED: November 26, 1996

US-CL-CURRENT: 435/195; 435/252.3, 435/69.1, 536/22.1, 536/23.1, 536/23.2, 536/23.7

APPL-NO: 8/ 421754
DATE FILED: April 14, 1995

PARENT-CASE:
This application is a division of application Ser. No. 08/304,081 filed Sep. 1, 1994 which is a divisional of 08/089,755 filed Jul. 9, 1993 now U.S. Pat. No. 5,356,801 which is a continuation-in-part of 07/911,845, now abandoned filed Jul. 10, 1992.

IN: Rambosek; John, Piddington; Chris S., Kovacevich; Brian R., Young; Kevin D., Denome; Sylvia A.

AB: This invention relates to a recombinant DNA molecule

containing a gene or genes
which encode a biocatalyst capable of desulfurizing a fossil fuel which contains organic sulfur
molecules. For example, the present invention encompasses a recombinant DNA molecule containing
a gene or genes of a strain of Rhodococcus rhodochrous.

L3: Entry 12 of 28

File: USPT

Nov 26, 1996

DOCUMENT-IDENTIFIER: US 5578478 A
TITLE: Recombinant DNA encoding a desulfurization biocatalyst

DEPR:
Amplification yielded the predicted 2846 bp fragment. In order to express the amplified fragment
harboring ORFs 2 and 3, it was ligated to the XbaI/EcoRI fragment of the chloramphenicol resistance
gene promoter from Rhodococcus fascians (Desomer et al.: Molecular Microbiology (1992) 6 (16),
2377-2385) to give plasmid pOTTO-1. Ultimately, a blunt end ligation was used for the subcloning of
the amplified product due to the fact that ligation using the engineered restriction sites was
unsuccessful. This fusion was ligated to shuttle-vector pRR-6 to produce plasmid pENOK-20. CPE648
transformants of pENOK-20 were grown in the presence of DBT and 25 .mu.g/ml chloramphenicol for
promoter induction. All transformants converted DBT to DBT-sulfone presumably through the activity
of the ORF 3 as demonstrated in subclone pENOK-3. The inability to further process DBT-sulfone with
the presence of ORF 2 suggests that the product of ORF 2 alone is incapable of using DBT-sulfone as
a substrate. This is consistant with results obtained from pENOK-Nsi, and suggests that ORF-2 alone
is incapable of using DBT-sulfone as a substrate.

DEPR:
Increasing the specific activity of desulfurization is a significant objective of the studies
described herein. One approach to accomplishing this goal is to replace the original promoter with
one that can produce both higher and constitutive expression of the desulfurization gene cluster.
Because there are so few reported and characterized Rhodococcus promoters, random genomic libraries
have been prepared and screened for promoter activity in two systems. In one, the reporter is the
chloramphenicol resistance gene used in the above-discussed plasmid constructions. In the other, the
desulfurization cluster itself is used as a reporter.

DEPR:
As also described below, partially digested Rhodococcus genomic DNA has been cloned upstream of a
promoterless chloramphenicol resistance gene. The resulting libraries were then transformed into
Rhodococcus which are subjected to chloramphenicol selection. Four apparent promoter elements were
rescued by pRHODOPRO-2, although plasmid could be isolated from only one of these, possibly due to
vector instability. The stable plasmid RP2-2A has been subjected to sequence analysis. Technical
problems have been observed with restriction enzyme treatment of the NarI cloning site used in these
vectors. Unfortunately, the NarI enzyme demonstrates severe site-selectivity and does not appear to
digest the vector well. New vectors have been constructed in order to alleviate this problem,
although a lack of convenient and unique restriction sites slowed the progress of these studies. A
recent observation on the Rhodococcus replication origin will aid in constructing a more effective
promoter probe, as discussed below.

DEPR:
Examples of potential alternative promoters include other known and described promoters such as the
chloramphenicol resistance gene promoter from Rhodococcus fascians (Desomer et al.: Molecular
Microbiology (1992) 6 (16), 2377-2385), the nitrile hydratase gene promoter from Rhodococcus
rhodochrous (Kobayashi, et al.: Biochimica et Biophysica Acta, 1129 (1991) 23-33), or other strong
promoters isolated from Rhodococcus sp. by "shot-gun" promoter probing. Other potential alternative
promoters include those from other Gram positive organisms such as Corynebacterium, Bacillus,
Streptomyces, and the like.

DEPR:
Promoter Engineering Example A: Expression from the chloramphenicol resistance gene promoter from
Rhodococcus fascians.

DEPR:
Each ORF has been successfully amplified and subcloned into pUC-19 NdeI as EcoRI fragments.
Alternative promoters will be ligated into the unique NdeI sites, and the fusions will be moved to
Rhodococcus-E. coli shuttle vector pRR-6 for expression in Rhodococcus.

13. Document ID: US 5371006 A

L3: Entry 13 of 28

File: USPT

Dec 6, 1994

US-PAT-NO: 5371006
DOCUMENT-IDENTIFIER: US 5371006 A
TITLE: Isolated DNA encoding the NotI restriction endonuclease and related methods for producing the
same
DATE-ISSUED: December 6, 1994

US-CL-CURRENT: 435/199; 435/193, 435/196, 435/252.33, 435/320.1, 536/23.2

APPL-NO: 8/ 003254
DATE FILED: January 11, 1993

IN: Morgan; Richard D., Benner; Jack S., Claus; Toby E.

AB: The present invention is directed to a method for cloning and producing the NotI
restriction endonuclease by 1) introducing the restriction endonuclease gene from Nocardia
otitidis-caviarum into a host whereby the restriction gene is expressed; 2) fermenting the host
which contains the plasmid encoding and expressing the NotI restriction endonuclease activity,
and 3) purifying the NotI restriction endonuclease from the fermented host which contains the
plasmid encoding and expressing the NotI restriction endonuclease activity.

L3: Entry 13 of 28

File: USPT

Dec 6, 1994

DOCUMENT-IDENTIFIER: US 5371006 A

TITLE: Isolated DNA encoding the NotI restriction endonuclease and related methods for producing the same

DEPV:
10. Overexpressing the NotI endonuclease gene: There are a number of ways in which the clone containing the restriction gene can be overexpressed. The DNA sequence and detailed mapping help determine the best approach for overexpression of the restriction endonuclease gene. One approach for overexpression comprises designing primers that hybridize directly at the N-terminus of the restriction endonuclease gene and somewhere downstream of the restriction endonuclease gene in order to use the polymerase-chain reaction to amplify the entire restriction endonuclease gene. The resulting DNA fragment can be cleaved to remove all Nocardia DNA preceding the endonuclease gene and can be inserted into an expression vector such as pSYX22 directly downstream of an inducible promoter such as T7. Alternatively, overexpression can be accomplished by inserting a promoter recognized strongly by E. coli, such as P.sub.tac on pAGR3 (available from New England Biolabs) directly in front of the beginning of the restriction endonuclease gene. This may be accomplished by finding convenient restriction sites near the beginning and end of the restriction endonuclease gene and compatible restriction sites near the promoter of pAGR3, and transferring the restriction gene into pAGR3 in line with the P.sub.tac promoter. Other regulated promoters which can be used are PlacUV5 (Fuller, Gene 19:43-54, (1982)), and .lambda.PL (Shimatake and Rosenberg, Nature 254:128, (1981)) on pUC19 and pBR322 derivatives. In addition, a strong ribosome binding site (Shine & Dalgarno, Proc. Natl. Acad. Sci. USA 71, 1342-1346, (1974)) can be placed in front of the gene to increase expression.

14. Document ID: US 5356801 A

L3: Entry 14 of 28 File: USPT Oct 18, 1994

US-PAT-NO: 5356801
DOCUMENT-IDENTIFIER: US 5356801 A
TITLE: Recombinant DNA encoding a desulfurization biocatalyst
DATE-ISSUED: October 18, 1994

US-CL-CURRENT: 435/195; 435/252.3, 435/320.1, 435/69.1, 536/22.1, 536/23.1, 536/23.2, 536/23.7

APPL-NO: 8/ 089755
DATE FILED: July 9, 1993

PARENT-CASE:
RELATED APPLICATION This application is a continuation-in-part application of U.S. Ser. No. 07/911,845, now abandoned, filed with the United States Patent and Trademark Office on Jul. 10, 1992.

IN: Rambosek; John, Piddington; Chris S., Kovacevich; Brian R., Young; Kevin D., Denome; Sylvia A.

AB: This invention relates to a recombinant DNA molecule containing a gene or genes which encode a biocatalyst capable of desulfurizing a fossil fuel which contains organic sulfur molecules. For example, the present invention encompasses a recombinant DNA molecule containing a gene or genes of a strain of Rhodococcus rhodochrous.

L3: Entry 14 of 28 File: USPT Oct 18, 1994

DOCUMENT-IDENTIFIER: US 5356801 A
TITLE: Recombinant DNA encoding a desulfurization biocatalyst

DEPR:
Amplification yielded the predicted 2846 bp fragment. In order to express the amplified fragment harboring ORFs 2 and 3, it was ligated to the XbaI/EcoRI fragment of the chloramphenicol resistance gene promoter from Rhodococcus fascians (Desomer et al.: Molecular Microbiology (1992) 6 (16), 2377-2385) to give plasmid pOTTO-1. Ultimately, a blunt end ligation was used for the subcloning of the amplified product due to the fact that ligation using the engineered restriction sites was unsuccessful. This fusion was ligated to shuttle-vector pRR-6 to produce plasmid pENOK-20. CPE648 transformants of pENOK-20 were grown in the presence of DBT and 25 .mu.g/ml chloramphenicol for promoter induction. All transformants converted DBT to DBT-sulfone presumably through the activity of the ORF 3 as demonstrated in subclone pENOK-3. The inability to further process DBT-sulfone with the presence of ORF 2 suggests that the product of ORF 2 alone is incapable of using DBT-sulfone as a substrate. This is consistant with results obtained from pENOK-Nsi, and suggests that ORF-2 alone is incapable of using DBT-sulfone as a substrate.

DEPR:
Increasing the specific activity of desulfurization is a significant objective of the studies described herein. One approach to accomplishing this goal is to replace the original promoter with one that can produce both higher and constitutive expression of the desulfurization gene cluster. Because there are so few reported and characterized Rhodococcus promoters, random genomic libraries have been prepared and screened for promoter activity in two systems. In one, the reporter is the chloramphenicol resistance gene used in the above-discussed plasmid constructions. In the other, the desulfurization cluster itself is used as a reporter.

DEPR:
As also described below, partially digested Rhodococcus genomic DNA has been cloned upstream of a promoterless chloramphenicol resistance gene. The resulting libraries were then transformed into Rhodococcus which are subjected to chloramphenicol selection. Four apparent promoter elements were rescued by pRHODOPRO-2, although plasmid could be isolated from only one of these, possibly due to vector instability. The stable plasmid RP2-2A has been subjected to sequence analysis. Technical problems have been observed with restriction enzyme treatment of the NarI cloning site used in these vectors. Unfortunately, the NarI enzyme demonstrates severe site-selectivity and does not appear to digest the vector well. New vectors have been constructed in order to alleviate this problem, although a lack of convenient and unique restriction sites slowed the progress of these studies. A recent observation on the Rhodococcus replication origin will aid in

constructing a more effective
promoter probe, as discussed below.

DEPR:
Examples of potential alternative promoters include other known and described promoters such as the
chloramphenicol resistance gene promoter from Rhodococcus fascians (Desomer et al.: Molecular
Microbiology (1992) 6 (16), 2377-2385), the nitrile hydratase gene promoter from Rhodococcus
rhodochrous (Kobayashi, et al.: Biochimica et Biophysica Acta, 1129 (1991) 23-33), or other strong
promoters isolated from Rhodococcus sp. by "shot-gun" promoter probing. Other potential alternative
promoters include those from other Gram positive organisms such as Corynebacterium, Bacillus,
Streptomyces, and the like.

DEPR:
Each ORF has been successfully amplified and subcloned into pUC-19 NdeI as EcoRI fragments.
Alternative promoters will be ligated into the unique NdeI sites, and the fusions will be moved to
Rhodococcus-E. coli shuttle vector pRR-6 for expression in Rhodococcus.

DEPC:
Promoter Engineering Example A: Expression from the Chloramphenicol Resistance Gene Promoter from
Rhodococcus fascians

15. Document ID: US 4952500 A

L3: Entry 15 of 28 File: USPT Aug 28, 1990

US-PAT-NO: 4952500
DOCUMENT-IDENTIFIER: US 4952500 A
TITLE: Cloning systems for Rhodococcus and related bacteria
DATE-ISSUED: August 28, 1990

US-CL-CURRENT: 435/69.1; 435/252.3, 435/320.1, 435/486, 435/826, 435/863, 435/872, 435/886,
435/91.41

APPL-NO: 7/ 151319
DATE FILED: February 1, 1988

IN: Finnerty; William R., Singer; Mary E.

AB: A plasmid transformation system for Rhodococcus was developed using an Escherichia
coli-Rhodococcus shuttle plasmid. Rhodococcus sp. H13-A contains three cryptic indigenous
plasmids, designated pMVS100, pMVS200 and pMVS300, of 75, 19.5 and 13.4 kilobases (Kb),
respectively. A 3.8 Kb restriction fragment of pMVS300 was cloned into pIJ30, a 6.3 Kb pBR322
derivative, containing the E. coli origin of replication (ori) and ampicillin resistance
determinant (bla) as well as a Streptomyces gene for thiostrepton resistance, tsr. The
resulting 10.1 Kb recombinant plasmid, designated pMVS301, was isolated from E. coli DH1
(pMVS301) and transformed into Rhodococcus sp. AS-50, a derivative of strain H13-A, by
polyethylene glycol-assisted transformation of Rhodococcus protoplasts and selection for
thiostrepton-resistant transformants. This strain was deposited with the ATCC on Feb. 1, 1988
and assigned ATCC 53719., The plasmid contains the Rhodococcus origin of replication. The
plasmid and derivatives thereof can therefore be used to introduce nucleic acid sequences to
and from Rhodococcus for subsequent expression and translation into protein. The isolated
origin of replication can also be used in the construction of new vectors.

L3: Entry 15 of 28 File: USPT Aug 28, 1990

DOCUMENT-IDENTIFIER: US 4952500 A
TITLE: Cloning systems for Rhodococcus and related bacteria

DEPR:
Rhodococcus transformants containing pMVS302 exhibit higher levels of ampicillin resistance and
.beta.-lactamase activity than those containing pMVS301. The two plasmids differ only in the
orientation of the cloned fragment of Rhodococcus DNA located upstream of the bla gene. Expression
of the bla gene in E. coli transformants is independent of the orientation of the cloned Rhodococcus
DNA, with similar levels of ampicillin resistance and .beta.-lactamase activity in transformants
containing either plasmid. The orientation-dependent expression of the E. coli bla gene in
Rhodococcus indicates that bla gene transcription occurs from a Rhodococcus promoter in the cloned
fragment rather than from its own promoter. Alternatively, pMVS302 may have a higher copy number
than pMVS301 in Rhodococcus. This is unlikely since both plasmids contain the same origin of
replication. In addition, estimates of plasmid copy number gels of total DNA preparations indicate
that pMVS301 and pMVS302 have similar copy numbers in Rhodococcus.

DEPR:
.beta.-lactamase activity was measured in the cells and extracellular growth medium of E. coli and
Rhodococcus transformants to correlate levels of ampicillin resistance with .beta.-lactamase
activity. .beta.-lactamase activity was exclusively extracellular in Rhodococcus transformants, with
no detectable cell-associated activity, demonstrated in Table 5. Cell-free extracts prepared by
sonication of Rhodococcus cells showed no detectable .beta.-lactamase activity. In E. coli
transformants, 70% of the .beta.-lactamase activity was cell-associated and 30% was present in the
growth medium. The specific activity of .beta.-lactamase in pMVS301-and pMVS302-containing
transformants was 3-fold higher than that of the host strain, E. coli DH1. Total .beta.-lactamase
activity was 7- and 47-fold higher in E. coli transformants containing pMVS301 and pMVS302,
respectively, than in the corresponding Rhodococcus transformants, indicating lower levels of bla
gene expression in Rhodococcus than in E. coli. The relative .beta.-lactamase activity in
Rhodococcus strains correlated directly with the level of ampicillin resistance in the respective
transformants. The expression of the E. coli bla gene in Rhodococcus appears dependent on the
orientation of the 3.8 Kb HindIII Rhodococcus DNA fragment in the shuttle plasmid, suggesting that
the bla gene is transcribed from a promoter in that segment of DNA.

16. Document ID: JP 10248578 A

L3: Entry 16 of 28

File: JPAB

Sep 22, 1998

PUB-NO: JP410248578A
DOCUMENT-IDENTIFIER: JP 10248578 A
TITLE: EXPRESSION VECTOR FOR BACTERIUM OF GENUS RHODOCOCCUS

PUBN-DATE: September 22, 1998

INT-CL (IPC): C12N 15/09; C07H 21/04; C12N 1/21

APPL-NO: JP09065618
APPL-DATE: March 5, 1997

IN: MIZUMURA, YURIE, TO, FUJIO

AB: PROBLEM TO BE SOLVED: To obtain a general-purpose expression vector for a bacterium of the genus Rhodococcus, containing a mutant type regulatory factor having actions on constituent activation of a nitrilase gene promoter and capable of highly expressing the objective gene., SOLUTION: This expression vector for a bacterium of the genus Rhodococcus comprises a DNA region capable of coding a regulatory factor having actions on the activation of a nitrilase gene promoter, a nitrilase promoter gene DNA region undergoing the activation by the regulatory factor, a DNA region capable of proliferating in the bacterium of the genus Rhodococcus and a drug-resistant DNA region capable of functioning in the bacterium of the genus Rhodococcus. An exogenote is integrated into the expression vector for the bacterium of the genus Rhodococcus and made to coexist in the bacterial cell of the genus Rhodococcus to thereby enable the constituent expression of the exogenote., COPYRIGHT: (C)1998,JPO

L3: Entry 16 of 28

File: JPAB

Sep 22, 1998

DOCUMENT-IDENTIFIER: JP 10248578 A
TITLE: EXPRESSION VECTOR FOR BACTERIUM OF GENUS RHODOCOCCUS

FPAR:
PROBLEM TO BE SOLVED: To obtain a general-purpose expression vector for a bacterium of the genus Rhodococcus, containing a mutant type regulatory factor having actions on constituent activation of a nitrilase gene promoter and capable of highly expressing the objective gene.

FPAR:
SOLUTION: This expression vector for a bacterium of the genus Rhodococcus comprises a DNA region capable of coding a regulatory factor having actions on the activation of a nitrilase gene promoter, a nitrilase promoter gene DNA region undergoing the activation by the regulatory factor, a DNA region capable of proliferating in the bacterium of the genus Rhodococcus and a drug-resistant DNA region capable of functioning in the bacterium of the genus Rhodococcus. An exogenote is integrated into the expression vector for the bacterium of the genus Rhodococcus and made to coexist in the bacterial cell of the genus Rhodococcus to thereby enable the constituent expression of the exogenote.

17. Document ID: JP 09028380 A

L3: Entry 17 of 28

File: JPAB

Feb 4, 1997

PUB-NO: JP409028380A
DOCUMENT-IDENTIFIER: JP 09028380 A
TITLE: CONTROL FACTOR RELATED TO EXPRESSION OF NITRILASE GANE AND THE GANE

PUBN-DATE: February 4, 1997

INT-CL (IPC): C12N 15/09; C07H 21/04; C07K 14/195; C12N 1/21; C12N 9/78

APPL-NO: JP07185626
APPL-DATE: July 21, 1995

IN: SHIMIZU, AKIRA, KOBAYASHI, TATSUHIKO

AB: PROBLEM TO BE SOLVED: To obtain a new control gene containing a specific amino acid sequence, having an action for activating a nitrides gene promoter, and useful for the activation of enzyme production for producing an organic acid from the corresponding nitrile, the high expression of a different kind of protein, etc., SOLUTION: This new control factor has an amino acid sequence containing an amino acid sequence of the formula, has an action for activating a nitrilase gene promoter, can activate the production of nitrilase for producing an organic acid from the corresponding nitrile compound, and can be applied to the high expression of different kinds of proteins, etc. The control factor is obtained by treating a plasmid pNJ 10 containing a nitrilase gene originated from Rhodococcus rhodochrous J1 strain (FERM BP-1478) with a restriction enzyme to cleave out the nitrilase gene. The gene in which the part lower than the 0.5kb downstream site of the nitrile gene is defected does not express the nitrilase. It is thereby recognized that the part codes the control factor related to the expression of the nitrilase gene., COPYRIGHT: (C)1997,JPO

L3: Entry 17 of 28

File: JPAB

Feb 4, 1997

DOCUMENT-IDENTIFIER: JP 09028380 A
TITLE: CONTROL FACTOR RELATED TO EXPRESSION OF NITRILASE GANE AND THE GANE

FPAR:
SOLUTION: This new control factor has an amino acid sequence containing an amino acid sequence of the formula, has an action for activating a nitrilase gene promoter, can activate the production of nitrilase for producing an organic acid from the corresponding nitrile compound, and can be applied

to the high expression of different kinds of proteins, etc. The control factor is obtained by
treating a plasmid pNJ 10 containing a nitrilase gene originated from Rhodococcus rhodochrous J1
strain (FERM BP-1478) with a restriction enzyme to cleave out the nitrilase gene. The gene in which
the part lower than the 0.5kb downstream site of the nitrile gene is defected does not express the
nitrilase. It is thereby recognized that the part codes the control factor related to the expression
of the nitrilase gene.

18. Document ID: JP 08173169 A

L3: Entry 18 of 28

File: JPAB

Jul 9, 1996

PUB-NO: JP408173169A
DOCUMENT-IDENTIFIER: JP 08173169 A
TITLE: REGULATORY FACTOR FOR MANIFESTING NITRILASE GENE AND THE GENE

PUBN-DATE: July 9, 1996

INT-CL (IPC): C12N 15/09; C12N 1/21; C12N 9/78

APPL-NO: JP06337652
APPL-DATE: December 28, 1994

IN: MIZUMURA, YURIE, TO, FUJIO

AB: PURPOSE: To obtain a regulatory factor having nitrilase gene promoter-activating
action, composed of plural kinds of peptide, capable of producing nitrilase through coexistence
with a nitrilase gene in Rhodococcus microbes, and to obtain the gene coding this factor.,
CONSTITUTION: This new regulatory factor has action to activate a nitrilase gene promoter,
being composed of a polypeptide having an amino acid sequence of formula I and a second
polypeptide having an amino acid sequence of formula II. The other objective new gene codes for
this regulatory factor. Coexistence of this gene with a nitrilase gene containing a promoter
domain in Rhodococcus microbes enables nitrilase production. The regulatory factor and the gene
are obtained by the following process: chromosome DNAs are separated from a Rhodococcus
erythropolis SK92 strain, a DNA library is prepared by using these DNAs, and then screened to
take the gene coding for the regulatory factor, and the gene is then manifested to obtain the
regulatory factor., COPYRIGHT: (C)1996,JPO

L3: Entry 18 of 28

File: JPAB

Jul 9, 1996

DOCUMENT-IDENTIFIER: JP 08173169 A
TITLE: REGULATORY FACTOR FOR MANIFESTING NITRILASE GENE AND THE GENE

FPAR:
PURPOSE: To obtain a regulatory factor having nitrilase gene promoter-activating action, composed of
plural kinds of peptide, capable of producing nitrilase through coexistence with a nitrilase gene in
Rhodococcus microbes, and to obtain the gene coding this factor.

FPAR:
CONSTITUTION: This new regulatory factor has action to activate a nitrilase gene promoter, being
composed of a polypeptide having an amino acid sequence of formula I and a second polypeptide having
an amino acid sequence of formula II. The other objective new gene codes for this regulatory factor.
Coexistence of this gene with a nitrilase gene containing a promoter domain in Rhodococcus microbes
enables nitrilase production. The regulatory factor and the gene are obtained by the following
process: chromosome DNAs are separated from a Rhodococcus erythropolis SK92 strain, a DNA library is
prepared by using these DNAs, and then screened to take the gene coding for the regulatory factor,
and the gene is then manifested to obtain the regulatory factor.

19. Document ID: EP 759474 A2

L3: Entry 19 of 28

File: EPAB

Feb 26, 1997

PUB-NO: EP000759474A2
DOCUMENT-IDENTIFIER: EP 759474 A2
TITLE: A regulatory factor involved in expression of nitrilase gene, and its gene

PUBN-DATE: February 26, 1997

INT-CL (IPC): C12N 15/74; C12N 5/10; C07K 14/195; C12P 7/40
EUR-CL (EPC): C07K014/195; C12N009/78, C12N015/74

APPL-NO: EP96305253
APPL-DATE: July 17, 1996

PRIORITY-DATA: JP18562695A (July 21, 1995)

IN: SHIMIZU, SAKAYU, KOBAYASHI, MICHIHIKO

AB: CHG DATE=19990617 STATUS=O> The invention relates to a regulatory factor
substantially containing an amino acid sequence represented by SEQ ID NO:1 and having the
action of activating a nitrilase gene promoter, a regulatory factor gene containing DNA coding
substantially for said regulatory factor, a recombinant plasmid containing said regulatory
factor gene, a nitrilase gene containing a promoter region and a DNA region capable of
replicating in a microorganism belonging to the genus Rhodococcus, and a transformant
transformed with said recombinant plasmid. According to the present invention, there are
provided a regulatory factor gene containing DNA coding substantially for a regulatory factor
having the action of activating a nitrilase gene promoter, a recombinant plasmid containing
said regulatory factor gene, and a transformant transformed with said plasmid.

L3: Entry 19 of 28

File: EPAB

Feb 26, 1997

DOCUMENT-IDENTIFIER: EP 759474 A2
TITLE: A regulatory factor involved in expression of nitrilase gene, and its gene

FPAR:
CHG DATE=19990617 STATUS=O> The invention relates to a regulatory factor substantially containing an
amino acid sequence represented by SEQ ID NO:1 and having the action of activating a nitrilase gene
promoter, a regulatory factor gene containing DNA coding substantially for said regulatory factor, a
recombinant plasmid containing said regulatory factor gene, a nitrilase gene containing a promoter
region and a DNA region capable of replicating in a microorganism belonging to the genus
Rhodococcus, and a transformant transformed with said recombinant plasmid. According to the present
invention, there are provided a regulatory factor gene containing DNA coding substantially for a
regulatory factor having the action of activating a nitrilase gene promoter, a recombinant plasmid
containing said regulatory factor gene, and a transformant transformed with said plasmid.

20. Document ID: EP 719862 A2

L3: Entry 20 of 28
File: EPAB
Jul 3, 1996

PUB-NO: EP000719862A2
DOCUMENT-IDENTIFIER: EP 719862 A2
TITLE: A regulatory factor for expression of nitrilase gene and a gene thereof

PUBN-DATE: July 3, 1996

INT-CL (IPC): C12N 15/31; C07K 14/195; C12N 15/74; C12N 1/21; C12N 9/78
EUR-CL (EPC): C12N015/74; C07K014/195, C12N009/78

APPL-NO: EP95309454
APPL-DATE: December 27, 1995

PRIORITY-DATA: JP33765294A (December 28, 1994)

IN: MIZUMURA, YURIE, YU, FUJIO

AB: CHG DATE=19990617 STATUS=O> The invention relates to a two component regulatory
factor which activates a nitrilase gene promoter, comprising a polypeptide having the amino
acid sequence of SEQ ID No: 1 and a polypeptide having the amino acid sequence of SEQ ID No: 2.
Nitrilase can be produced by introducing the DNA coding for the regulatory factor together with
a nitrilase gene containing a promoter region into a microorganism of the genus Rhodococcus.

L3: Entry 20 of 28
File: EPAB
Jul 3, 1996

DOCUMENT-IDENTIFIER: EP 719862 A2
TITLE: A regulatory factor for expression of nitrilase gene and a gene thereof

FPAR:
CHG DATE=19990617 STATUS=O> The invention relates to a two component regulatory factor which
activates a nitrilase gene promoter, comprising a polypeptide having the amino acid sequence of SEQ
ID No: 1 and a polypeptide having the amino acid sequence of SEQ ID No: 2. Nitrilase can be produced
by introducing the DNA coding for the regulatory factor together with a nitrilase gene containing a
promoter region into a microorganism of the genus Rhodococcus.

21. Document ID: EP 713914 A2

L3: Entry 21 of 28
File: EPAB
May 29, 1996

PUB-NO: EP000713914A2
DOCUMENT-IDENTIFIER: EP 713914 A2
TITLE: A regulatory gene for the expression of nitrile hydratase gene

PUBN-DATE: May 29, 1996

INT-CL (IPC): C12N 15/31; C12N 15/74; C12N 1/21; C07K 14/35; C12P 13/02
EUR-CL (EPC): C07K014/195; C12N009/78, C12N015/74

APPL-NO: EP95306960
APPL-DATE: October 2, 1995

PRIORITY-DATA: JP23926394A (October 3, 1994)

IN: SHIMIZU, SAKAYU, KOBAYASHI, MICHIHIKO

AB: CHG DATE=19990617 STATUS=O> The invention relates to a regulatory gene coding for a
polypeptide having the ability to activate a promoter for a nitrile hydratase gene, a
recombinant DNA containing said regulatory gene, and a transformant transformed with said
recombinant DNA. The introduction of the regulatory gene of the invention along with a nitrile
hydratase gene and its promoter region permits bacteria of the genus Rhodococcus to produce a
higher level of nitrile hydratase. Other extraneous gene can also be introduced into a region
downstream of the promoter to produce other proteins in high yield.

L3: Entry 21 of 28
File: EPAB
May 29, 1996

DOCUMENT-IDENTIFIER: EP 713914 A2
TITLE: A regulatory gene for the expression of nitrile hydratase gene

FPAR:
CHG DATE=19990617 STATUS=O> The invention relates to a regulatory gene coding for a polypeptide
having the ability to activate a promoter for a nitrile hydratase gene, a recombinant DNA containing
said regulatory gene, and a transformant transformed with said recombinant

DNA. The introduction of
the regulatory gene of the invention along with a nitrile hydratase gene and its promoter region
permits bacteria of the genus Rhodococcus to produce a higher level of nitrile hydratase. Other
extraneous gene can also be introduced into a region downstream of the promoter to produce other
proteins in high yield.

22. Document ID: EP 1127943 A2

L3: Entry 22 of 28
File: DWPI
Aug 29, 2001

DERWENT-ACC-NO: 2001-551402
DERWENT-WEEK: 200162

TITLE: Plasmid vector of Rhodococcus for producing proteins such as enzymes involved in the removal
of organic sulfur from fossil fuels, comprises a parA gene, genes encoding proteins involved in
replication, and a genetic marker

PRIORITY-DATA: 2000IT-MI00332 (February 24, 2000)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
EP 1127943 A2	August 29, 2001	E	024	C12N015/74

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
EP 1127943A2	February 19, 2001	2001EP-0200582	

INT-CL (IPC): C10G 32/00; C12N 15/74

IN: DE FERRA, F, MARGARIT Y ROS, I, RODRIGUEZ, F, SERBOLISCA, L P

AB: NOVELTY - Cloning vector pSM843 (I), comprising the rep genes ORF81 and trbA, the
gene parA, and at least one gene which encodes a genetic marker that confers resistance to
cadmuim or an antibiotic, is new., DETAILED DESCRIPTION - Cloning vector (I) pSM843 comprises:,
(i) rep genes ORF81 and trbA (II), encoding proteins involved in replication in Rhodococcus;,
(ii) gene parA (III) comprising a fully defined sequence of 2290 base pairs (bp) as given in
the specification;, (iii) at least one gene (IV) encoding genetic markers selected from the cad
operon, that confer resistance to cadmium or antibiotics., INDEPENDENT CLAIMS are also included
for the following:, (1) an expression vector (V) comprising:, (i) (II), (III) and (IV);, (ii) a
constitutive promoter of Rhodococcus comprising a sequence of 1355 bp as given in the
specification;, (iii) a multiple cloning site downstream of the promoter; and, (iv) the
replication origin in Escherichia coli (E.coli) deposited with the number CBS 102445;, (2) a
microorganism (VI) such as Rhodococcus, Gordona and Nocardia transformed with (I) and/or (V);,
(3) a strain of Rhodococcus (VII) transformed with (V) deposited with the number CBS 102447;,
(4) a research method (II) for promoters in microorganisms capable of integrating at random
fragments of foreign DNA in its chromosome without requiring a sequence homology higher than 3
bp between the donor DNA and that of the host, comprising:, (i) transforming the microorganism
directly with a gene reporter without its promoter or with a multicopy plasmid of E.coli
containing the gene, linearized upstream of the gene reporter;, (ii) selecting the clones which
have integrated the gene reporter in their chromosome, downstream of a promoter sequence;,
(iii) digesting the chromosomal DNA of the clones selected with restriction enzymes which cut
upstream and downstream the gene; and, (iv) amplifying the DNA, and sequencing the promoter
upstream the gene reporter; and, (5) a constitutive promoter of Rhodococcus comprising a fully
defined 1355 bp sequence as given in the specification., USE - (II) is useful for producing
homologous or heterologous proteins of interest such as enzymes involved in the selective
removal of organic sulfur from fossil fuels (SoxA, SoxB, SoxC), L-amino acids, enantiomorphs of
chiral compounds and carboxylic acids in a microorganism. The proteins are preferably sox
enzymes. Microorganisms such as Rhodococcus, Gordona and Nocardia containing the sox operon
downstream to the constitutive promoter, in particular Rhodococcus strain SMV114 CBS 102447,
transformed with (I) and/or (II) are useful for removing organic sulfur from fossil fuels
(claimed)., ADVANTAGE - The expression vector has high stability in the absence of selective
pressure in the transformed strains of Rhodococcus., DESCRIPTION OF DRAWING(S) - The figure
shows the restriction map of the 7.3 kb plasmid pSM843.

L3: Entry 22 of 28
File: DWPI
Aug 29, 2001

DERWENT-ACC-NO: 2001-551402
DERWENT-WEEK: 200162
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TITLE: Plasmid vector of Rhodococcus for producing proteins such as enzymes involved in the removal
of organic sulfur from fossil fuels, comprises a parA gene, genes encoding proteins involved in
replication, and a genetic marker

ABTX:
(ii) a constitutive promoter of Rhodococcus comprising a sequence of 1355 bp as given in the
specification;

ABTX:
(5) a constitutive promoter of Rhodococcus comprising a fully defined 1355 bp sequence as given in
the specification.

ABTX:
USE - (II) is useful for producing homologous or heterologous proteins of interest such as enzymes

involved in the selective removal of organic sulfur from fossil fuels (SoxA, SoxB, SoxC), L-amino
acids, enantiomorphs of chiral compounds and carboxylic acids in a microorganism. The proteins are
preferably sox enzymes. Microorganisms such as Rhodococcus, Gordona and Nocardia containing the sox
operon downstream to the constitutive promoter, in particular Rhodococcus strain SMV114 CBS 102447,
transformed with (I) and/or (II) are useful for removing organic sulfur from fossil fuels (claimed).

23. Document ID: EP 759474 A2, JP 09028380 A, US 5830693 A

L3: Entry 23 of 28
File: DWPI
Feb 26, 1997

DERWENT-ACC-NO: 1997-147520
DERWENT-WEEK: 199925

TITLE: Regulatory factor that activates nitrilase gene promoter - and Rhodococcus transformants with
increased nitrilase activity, for converting nitrile(s) to organic acids

PRIORITY-DATA: 1995JP-0185626 (July 21, 1995)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
EP 759474 A2	February 26, 1997	E	013	C12N015/74
JP 09028380 A	February 4, 1997		008	C12N015/09
US 5830693 A	November 3, 1998		000	C12N009/15

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
EP 759474A2	July 17, 1996	1996EP-0305253	
JP09028380A	July 21, 1995	1995JP-0185626	
US 5830693A	July 19, 1996	1996US-0683908	

INT-CL (IPC): C07H 21/04; C07K 14/195; C12N 1/21; C12N 5/10; C12N 9/15; C12N 9/78; C12N 15/09; C12N 15/31;
C12N 15/74; C12P 7/40; C12N 15/09; C12R 1/01; C12N 1/21; C12R 1/01; C12N 9/78; C12R 1/01

IN: KOBAYASHI, M, SHIMIZU, S

AB: New regulatory factor capable of activating a nitrilase gene promoter and contg. a
319 amino acids sequence given in the specification, is new., USE - The regulatory factor can
be used to increase nitrilase expression in Rhodococcus transformants thus increasing
production of an organic acid from its corresp. nitrile., New regulatory factor capable of
activating a nitrilase gene promoter and contg. a 319 amino acids sequence given in the
specification, is new., USE - The regulatory factor can be used to increase nitrilase
expression in Rhodococcus transformants thus increasing production of an organic acid from its
corresp. nitrile.

L3: Entry 23 of 28
File: DWPI
Feb 26, 1997

DERWENT-ACC-NO: 1997-147520
DERWENT-WEEK: 199925
COPYRIGHT 2002 DERWENT INFORMATION LTD

TITLE: Regulatory factor that activates nitrilase gene promoter - and Rhodococcus transformants with
increased nitrilase activity, for converting nitrile(s) to organic acids

24. Document ID: JP 09028382 A

L3: Entry 24 of 28
File: DWPI
Feb 4, 1997

DERWENT-ACC-NO: 1997-159092
DERWENT-WEEK: 199715

TITLE: Microorganism producing nitrilase in absence of inducer - useful as catalyst in large scale
organic acid production

PRIORITY-DATA: 1995JP-0204061 (July 19, 1995)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
JP 09028382 A	February 4, 1997		013	C12N015/09

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
JP09028382A	July 19, 1995	1995JP-0204061	

INT-CL (IPC): C07H 21/04; C12N 1/21; C12N 9/78; C12N 15/09; C12N 15/09; C12R 1/01; C12N 1/21; C12R 1/01; C12N
9/78; C12R 1/01

IN: No data.

AB: Microorganism producing nitrilase in a medium in the absence of an inducer, is new.
Also claimed are: (1) regulatory factor for activating a nitrilase gene promoter, consisting of
the 244 and 534 residue amino acid sequences given in the specification; (2) gene encoding the
regulatory factor; (3) recombinant plasmid containing the gene, which is capable of replication
and multiplication in a microorganism belonging to the genus Rhodococcus; and (4) microorganism
having the gene, or transformed with the recombinant plasmid., USE - The gene product
(nitrilase) is industrially useful as a catalyst for the production of organic acids, as it is
hydrolyses nitriles into their corresponding acids., ADVANTAGE - The microorganism can produce
nitrilase in high yield without adding any inducer to the medium. Hence, the preparation of the
medium is easy for industrial large-scale culture of the microorganism, and the disposal cost
of the waste culture is reduced.

L3: Entry 24 of 28
File: DWPI
Feb 4, 1997

DERWENT-ACC-NO: 1997-159092
DERWENT-WEEK: 199715

TITLE: Microorganism producing nitrilase in absence of inducer - useful as catalyst in large scale
organic acid production

AB TX:
Microorganism producing nitrilase in a medium in the absence of an inducer, is new. Also claimed
are: (1) regulatory factor for activating a nitrilase gene promoter, consisting of the 244 and 534
residue amino acid sequences given in the specification; (2) gene encoding the regulatory factor;
(3) recombinant plasmid containing the gene, which is capable of replication and multiplication in a
microorganism belonging to the genus Rhodococcus; and (4) microorganism having the gene, or
transformed with the recombinant plasmid.

25. Document ID: DE 69522192 E, EP 719862 A2, JP 08173169 A, US 5602014 A, CN 1133341 A, TW 387895 A, JP 3154633 B2, EP 719862 B1

L3: Entry 25 of 28
File: DWPI
Sep 20, 2001

DERWENT-ACC-NO: 1996-302346
DERWENT-WEEK: 200163

TITLE: Rhodococcus erythropolis two component nitrilase gene activator - enhances activation of
nitrilase gene promoter in presence of nitrile

PRIORITY-DATA: 1994JP-0337652 (December 28, 1994)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
DE 69522192 E	September 20, 2001		000	C12N015/31
EP 719862 A2	July 3, 1996	E	023	C12N015/31
JP 08173169 A	July 9, 1996		013	C12N015/09
US 5602014 A	February 11, 1997		013	C12N015/00
CN 1133341 A	October 16, 1996		000	C12N015/55
TW 387895 A	April 21, 2000		000	C07K013/00
JP 3154633 B2	April 9, 2001		012	C07K014/195
EP 719862 B1	August 16, 2001	E	000	C12N015/31

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
DE 69522192E	December 27, 1995	1995DE-0622192	
DE 69522192E	December 27, 1995	1995EP-0309454	
DE 69522192E		EP 719862	Based on
EP 719862A2	December 27, 1995	1995EP-0309454	
JP 08173169A	December 28, 1994	1994JP-0337652	
US 5602014A	December 22, 1995	1995US-0577184	
CN 1133341A	December 28, 1995	1995CN-0119459	
TW 387895A	January 30, 1996	1996TW-0101136	
JP 3154633B2	December 28, 1994	1994JP-0337652	
JP 3154633B2		JP 8173169	Previous Publ.
EP 719862B1			

December 27, 1995
1995EP-0309454

INT-CL (IPC): C07K 13/00; C07K 14/195; C12N 1/21; C12N 9/78; C12N 15/00; C12N 15/09; C12N 15/31; C12N 15/55; C12N 15/66 ; C12N 15/67; C12N 15/74; C12P 21/00; C12N 1/21; C12R 1/01; C12N 1/21; C12R 1/01; C12N 1/21; C12R 1/01; C12N 9/78; C12R 1/01; C12N 1/21; C12R 1/01; C12N 9/78; C12R 1/01

IN: MIZUMURA, Y, YU, F

AB: New regulatory factor (A) which activates a nitrilase gene promoter comprising two subunit polypeptides of 244 and 534 amino acids given in the specification is claimed. Also claimed are: (1) a DNA molecule (I) encoding (A); (2) a recombinant plasmid contg. (I), a nitrilase gene contg. a promoter region and a DNA region capable of replicating in Rhodococcus sp.; and (3) a Rhodococcus transformed with the plasmid of (2)., USE - Inclusion of (I) into a Rhodococcus microorganism contg. a nitrilase gene contg. its promoter allows efficient prodn. of nitrilase. Nitrilase is used commercially to produce organic acids and amides by hydration or hydrolysis of their corresp. nitriles., ADVANTAGE - Previously, recombinant nitrilase genes have been ineffective due to their lacking the necessary nitrilase gene promoter activator. Prodn. of nitrilase for use in the prodn. of organic acids by biological rather than chemical methods means the acids can be produced under mild conditions., New regulatory factor (A) which activates a nitrilase gene promoter comprising two subunit polypeptides of 244 and 534 amino acids given in the specification is claimed. Also claimed are: (1) a DNA molecule (I) encoding (A); (2) a recombinant plasmid contg. (I), a nitrilase gene contg. a promoter region and a DNA region capable of replicating in Rhodococcus sp.; and (3) a Rhodococcus transformed with the plasmid of (2)., USE - Inclusion of (I) into a Rhodococcus microorganism contg. a nitrilase gene contg. its promoter allows efficient prodn. of nitrilase. Nitrilase is used commercially to produce organic acids and amides by hydration or hydrolysis of their corresp. nitriles., ADVANTAGE - Previously, recombinant nitrilase genes have been ineffective due to their lacking the necessary nitrilase gene promoter activator. Prodn. of nitrilase for use in the prodn. of organic acids by biological rather than chemical methods means the acids can be produced under mild conditions., A regulatory system comprises: (a) the polypeptide having a specific sequence of 244 aminoacids (SEQ ID NO:1) and (b) the polypeptide having sequence of 534 aminoacids (SEQ ID NO:2) (sequences are given in the specification).

L3: Entry 25 of 28
File: DWPI
Sep 20, 2001

DERWENT-ACC-NO: 1996-302346
DERWENT-WEEK: 200163

TITLE: Rhodococcus erythropolis two component nitrilase gene activator - enhances activation of nitrilase gene promoter in presence of nitrile

ABTX:
New regulatory factor (A) which activates a nitrilase gene promoter comprising two subunit polypeptides of 244 and 534 amino acids given in the specification is claimed. Also claimed are: (1) a DNA molecule (I) encoding (A); (2) a recombinant plasmid contg. (I), a nitrilase gene contg. a promoter region and a DNA region capable of replicating in Rhodococcus sp.; and (3) a Rhodococcus transformed with the plasmid of (2).

ABTX:
USE - Inclusion of (I) into a Rhodococcus microorganism contg. a nitrilase gene contg. its promoter allows efficient prodn. of nitrilase. Nitrilase is used commercially to produce organic acids and amides by hydration or hydrolysis of their corresp. nitriles.

ABEQ:
New regulatory factor (A) which activates a nitrilase gene promoter comprising two subunit polypeptides of 244 and 534 amino acids given in the specification is claimed. Also claimed are: (1) a DNA molecule (I) encoding (A); (2) a recombinant plasmid contg. (I), a nitrilase gene contg. a promoter region and a DNA region capable of replicating in Rhodococcus sp.; and (3) a Rhodococcus transformed with the plasmid of (2).

ABEQ:
USE - Inclusion of (I) into a Rhodococcus microorganism contg. a nitrilase gene contg. its promoter allows efficient prodn. of nitrilase. Nitrilase is used commercially to produce organic acids and amides by hydration or hydrolysis of their corresp. nitriles.

26. Document ID: JP 3217409 B2, EP 483797 A, US 5202248 A, JP 05192166 A, EP 483797 B1, DE 69113390 E

L3: Entry 26 of 28
File: DWPI
Oct 9, 2001

DERWENT-ACC-NO: 1992-152474
DERWENT-WEEK: 200164

TITLE: Cloning and prodn. of nCOI restriction endonuclease and methylase - using DNA from nocardia corallina ATCC 19070

PRIORITY-DATA: 1990US-0608228 (November 2, 1990)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
JP 3217409 B2	October 9, 2001		015	C12N015/09
EP 483797 A	May 6, 1992	E	019	
US 5202248 A	April 13, 1993		014	C12N009/22
JP 05192166 A	August 3, 1993			

022
C12N015/55
EP 483797 B1
September 27, 1995
E
018
C12N015/54
DE 69113390 E
November 2, 1995
000
C12N015/54

APPLICATION-DATA:
PUB-NO
APPL-DATE
APPL-NO
DESCRIPTOR
JP 3217409B2
November 1, 1991
1991JP-0313555
JP 3217409B2
JP 5192166
Previous Publ.
EP 483797A
October 30, 1991
1991EP-0118511
US 5202248A
November 2, 1990
1990US-0608228
JP 05192166A
November 1, 1991
1991JP-0313555
EP 483797B1
October 30, 1991
1991EP-0118511
DE 69113390E
October 30, 1991
1991DE-0613390
DE 69113390E
October 30, 1991
1991EP-0118511
DE 69113390E
EP 483797
Based on

INT-CL (IPC): C12N 1/21; C12N 9/10; C12N 9/16; C12N 9/22; C12N 15/09; C12N 15/54; C12N 15/55; C12N 1/21; C12R 1/19; C12N 15/09; C12R 1/365

IN: VANCOTT, E M

AB: A DNA fragment comprising a nucleotide seqeunce encoding the NcoI restriction endonuclease produced by Nocardia corallina ATCC 19070 is new., A DNA fragment comprising a nucleotide sequence encoding the NcoI methylase produced by N corallina ATCC 19070; recombinant vectors; host cell transformed with the vectors; a recombinant NCoI which recognises the sequence CCATGG obtd. from N, corallina ATCC 19070 and free of contaminants found in native NcoI prepns.; and prodn. of NcoI by culturing the cells transformed host are also claimed., USE/ADVANTAGE - NcoI restriction endonuclease and modification methylase are useful tools for characterising and rearranging DNA in the laboratory. The host strains expressing them are useful as they simplify the purificn. of the enzymes and provide a means for producing the enzymes in commercially useful amts. The enzyme cleaves between the two C residues, leaving a 4 base 5' overhang, An expression vector which expresses recombinant NcoI endonuclease comprising a DNA sequence coding for NcoI restriction endonuclease, wherein said DNA sequence is obtainable from N. corallina ATCC No. 19070, and wherein said expression vector is obtainable by replacing the endogenous regulatory sequences of the endonuclease gene found immediately downstream of the NcoI modification enzyme encoding DNA by an exogenous promoter and ribosomal binding site., Isolated DNA encoding NcoI restriction endonuclease, isolatable from vector PEV19OR612-22C-29., Also claimed are: a recombinant DNA vector comprising a vector contg. a DNA sequence encoding NcoI produced by Nocardia corallina ATCC 19070; DNA encoding NcoI restriction endonuclease and methylase obtainable from ATCC Accession No. 68457; a cloning vector comprising the DNA; or has x cell transformed by the vector; and a method of producing NcoI., USE/ADVANTAGE - NcoI is prepd. free of contaminants normally found in conventional endonuclease prepns

L3: Entry 26 of 28
File: DWPI
Oct 9, 2001

DERWENT-ACC-NO: 1992-152474
DERWENT-WEEK: 200164

TITLE: Cloning and prodn. of nCOI restriction endonuclease and methylase - using DNA from nocardia corallina ATCC 19070

ABEQ:
An expression vector which expresses recombinant NcoI endonuclease comprising a DNA sequence coding for NcoI restriction endonuclease, wherein said DNA sequence is obtainable from N. corallina ATCC No. 19070, and wherein said expression vector is obtainable by replacing the endogenous regulatory sequences of the endonuclease gene found immediately downstream of the NcoI modification enzyme encoding DNA by an exogenous promoter and ribosomal binding site.

27. Document ID: US 4368265 A

L3: Entry 27 of 28
File: DWPI
Jan 11, 1983

DERWENT-ACC-NO: 1983-12080K
DERWENT-WEEK: 198305

TITLE: Antibiotic x-14868A prodn. by cultivating Nocardia sp. - useful as antibacterial, coccidiostat, ruminant growth promoter etc.

PRIORITY-DATA: 1981US-0237544 (February 28, 1981), 1980US-0116696 (January 30, 1980)

PATENT-FAMILY:
PUB-NO
PUB-DATE
LANGUAGE
PAGES
MAIN-IPC
US 4368265 A
January 11, 1983
014

INT-CL (IPC): C12P 17/18; C12P 19/60

IN: LIU, C M, PROSSER, B, WESTLEY, J

AB: Prodn. of Antibiotic X-14868A comprises cultivation of a strain of Nocardia X-14868
(i.e. ATCC 31585) in an aq. medium contg. carbohydrate and nitrogenous nutrient, under
submerged aerobic conditions. The Antibiotic is then isolated from the medium., Antibiotic
X-14868A is effective against Gram-positive bacteria and it is a coccidiostat in poultry and a
growth promotant in ruminants, and it is active against Treponema hyodysenteriae, the etiologic
agent of swine dysentery. This is described in the parent patent (56870 D/31).

L3: Entry 27 of 28
File: DWPI
Jan 11, 1983

DERWENT-ACC-NO: 1983-12080K
DERWENT-WEEK: 198305

TITLE: Antibiotic x-14868A prodn. by cultivating Nocardia sp. - useful as antibacterial,
coccidiostat, ruminant growth promoter etc.

28. Document ID: US 4278663 A, CA 1160972 A, DE 3160616 G, DK 8100298 A, DK 8600250 A, EP 35119 A, EP
35119 B, FI 8100252 A, HU 27166 T, IL 61971 A, JP 56120696 A, JP 90050918 B, NO 8100319 A, NO 8700452 A, PT
72417 A, ZA 8100151 A

L3: Entry 28 of 28
File: DWPI
Jul 14, 1981

DERWENT-ACC-NO: 1981-56870D
DERWENT-WEEK: 198131

TITLE: Antibiotics X-14868 A, B, C and D from Nocardia sp. ATCC 31585 - useful as antibacterials,
anticoccidials and ruminant growth promoters

PRIORITY-DATA: 1981US-0237544 (February 28, 1981), 1980US-0116696 (January 30, 1980)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
US 4278663 A	July 14, 1981		014	
CA 1160972 A	January 24, 1984		000	
DE 3160616 G	August 25, 1983		000	
DK 8100298 A	October 5, 1981		000	
DK 8600250 A	January 17, 1986		000	
EP 35119 A	September 9, 1981	G	000	
EP 35119 B	July 20, 1983	G	000	
FI 8100252 A	September 30, 1981		000	
HU 27166 T	October 28, 1983		000	
IL 61971 A	January 31, 1984		000	
JP 56120696 A	September 22, 1981		000	
JP 90050918 B	November 5, 1990		000	
NO 8100319 A	August 24, 1981		000	
NO 8700452 A	April 13, 1987		000	
PT 72417 A	April 6, 1982		000	
ZA 8100151 A	December 15, 1981		000	

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
JP90050918B	January 29, 1981	1981JP-0012193	

INT-CL (IPC): A23K 1/16; A61K 31/71; A61K 35/74; C07D 493/10; C07G 11/00; C07H 17/04; C08G 0/00; C12P 17/18;
C12P 19/60 ; C12R 1/36

IN: LIU, C M, PROSSER, B, WESTLEY, J

AB: Antibiotics X-14868A-D of formula (I) (A-B) and their salts are new, (either (1) X1
is Me, X2 is ---Me, X3 is absent and R is H, or (2) X1 is absent, X2 is -Me, X3 is Me and R is
Me, respectively). The X-14868C melts at 172-5 deg.C (Na salt), gives a microanalysis of
57.12%C, 8.58%H and 2.36%Na and has characterising i.r. spectrum and specific rotation. The
X-14868D melts at 194-5 deg. C (Na salt) gives a microanalysis of 60.32%C, 8.80%H and 3.40%Na
and has characterisin g i.r. spectrum and specific rotation., The antibiotics are active
against certain Gram-positive bacteria and so are sterilising agents and they show
anticoccodiostatic activity. X-14868A improves ruminant feed utilisation and prevents and
treats ketosis, and it is active against Treponema hyodysentariae, the etiologic agent of swine
dysentery.

L3: Entry 28 of 28

File: DWPI

Jul 14, 1981

DERWENT-ACC-NO: 1981-56870D
DERWENT-WEEK: 198131

TITLE: Antibiotics X-14868 A, B, C and D from Nocardia sp. ATCC 31585 - useful as antibacterials, anticoccidials and ruminant growth promoters

09/446681
AH #14

=> s rhodococcus or nocardia or corallina
L1 25380 RHODOCOCCUS OR NOCARDIA OR CORALLINA

=> s promoter?
L2 412671 PROMOTER?

=> s l1 and l2
L3 276 L1 AND L2

=> dup rem l3
PROCESSING COMPLETED FOR L3
L4 127 DUP REM L3 (149 DUPLICATES REMOVED)

=> s l4 and py<1998

1 FILES SEARCHED...
3 FILES SEARCHED...
4 FILES SEARCHED...
L5 84 L4 AND PY<1998

=> d l5 ibib abs 1-84

L5 ANSWER 1 OF 84 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 1997:414292 BIOSIS
DOCUMENT NUMBER: PREV199799706335
TITLE: Amy as a reporter gene for ***promoter*** activity in ***Nocardia*** lactamdurans: Comparison of ***promoters*** of the cephamycin cluster.
AUTHOR(S): Chary, Vasant K.; De La Fuente, Juan L.; Liras, Paloma; Martin, Juan F. (1)
CORPORATE SOURCE: (1) Area Microbiol., Fac. Biol., Univ. Leon, 24071 Leon Spain
SOURCE: Applied and Environmental Microbiology, (1997) Vol. 63, No. 8, pp. 2977-2982.
ISSN: 0099-2240.
DOCUMENT TYPE: Article
LANGUAGE: English
AB ***Promoter*** probe vectors containing the pA origin of replication and the Streptomyces griseus ***promoterless*** amy gene (encoding alpha-amylase) as reporter have been constructed to study transcription initiation regions in ***Nocardia*** lactamdurans. In some of the ***promoter*** probe vectors the phage fd terminator has been introduced to avoid readthrough expression from upstream sequences. By using these vectors, four different transcription initiation regions of the cephamycin gene cluster have been studied in N. lactamdurans. The bla gene encoding a beta-lactamase has a relatively strong ***promoter*** . Two other separate ***promoters*** corresponding to the lat and cefD genes (encoding, respectively, lysine-6-aminotransferase and isopenicillin N-epimerase) showed weak transcription initiation ability. These two ***promoters*** are arranged in a bidirectional transcription initiation region located in the center of the cephamycin gene cluster. The cmcH gene (encoding 3-hydroxymethylcephem carbamoyltransferase) upstream region did not contain a functional ***promoter*** , suggesting that cmcH is transcribed as a part of a polycistronic mRNA. The native amy ***promoter*** is used very efficiently in N. lactamdurans, resulting in secretion of high levels of extracellular alpha-amylase.

L5 ANSWER 2 OF 84 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 1997:273176 BIOSIS
DOCUMENT NUMBER: PREV199799564894
TITLE: Genes encoding the NAD-reducing hydrogenase of ***Rhodococcus*** opacus MR11.
AUTHOR(S): Grzeszik, Claudia; Luebbers, Meike; Reh, Michael; Schlegel, Hans G. (1)
CORPORATE SOURCE: (1) Institut fuer Mikrobiologie, Georg-August-Universitaet Goettingen, Grisebachstrasse 8, D-37077 Goettingen Germany
SOURCE: Microbiology (Reading), (1997) Vol. 143, No. 4, pp. 1271-1286.
ISSN: 1350-0872.
DOCUMENT TYPE: Article
LANGUAGE: English
AB The dissociation of the soluble NAD-reducing hydrogenase of ***Rhodococcus*** opacus MR11 into two dimeric proteins with different catalytic activities and cofactor composition is unique among the NAD-reducing hydrogenases studied so far. The genes of the soluble hydrogenase were localized on a 7.4 kbp AsnI fragment of the linear plasmid pHG201 via heterologous hybridization. Analysis of the nucleotide sequence of this fragment revealed the seven open reading frames ORF1, hoxF, -U, -Y, -H, -W and ORF7. The six latter ORFs belong to the gene cluster of the soluble hydrogenase. Their gene products are highly homologous to those of the NAD-reducing enzyme of Alcaligenes eutrophus H16. The genes hoxF, -U, -Y and -H encode the subunits alpha, gamma, delta and beta, respectively. The gene hoxW encodes a putative protease, which may be essential for C-terminal processing of the beta subunit. Finally, ORF7 encodes a protein which has similarities to cAMP- and cGMP-binding protein kinases, but its function is not known. ORF1, which lies upstream of the hydrogenase gene cluster, encodes a putative transposase found in IS elements of other bacteria. Northern hybridizations and primer extensions using total RNA of autotrophically and heterotrophically grown cells of R. opacus MR11 indicated that the hydrogenase genes are under control of sigma-70-like ***promoter*** located at the right end of ORF1 and are even transcribed under heterotrophic conditions at a low level. Furthermore, this ***promoter*** was shown to be active in the recombinant Escherichia coli strain LHY1 harbouring the 7.4 kbp AsnI fragment, resulting in overexpression of the hydrogenase genes. Although all four subunits of the soluble hydrogenase were shown via Western immunoblots to be synthesized in E. coli, no active enzyme was detectable.

L5 ANSWER 3 OF 84 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 1997:248656 BIOSIS
DOCUMENT NUMBER: PREV199799547859
TITLE: The expediency of using the sludge biomass as a microbial fertilizer.
AUTHOR(S): Arkhipchenko, I. A.
CORPORATE SOURCE: All-Russ. Res. Inst. Agric. Microbiol., St. Petersburg-Pushkin 189620 Russia
SOURCE: Doklady Rossiiskoi Akademii Sel'skokhozyaistvennykh Nauk, (1997) Vol. 0, No. 1, pp. 35-37.
ISSN: 1068-3674.
DOCUMENT TYPE: Article
LANGUAGE: Russian
SUMMARY LANGUAGE: Russian; English
AB The microflora and microfauna in the pigfarm aerotanks containing the activated sludges were investigated. It was shown that a principally new type of biocenosis is formed in the pigfarm waste water which is basically presented by nocardio- and coryne-like bacteria (genera: ***Rhodococcus*** , Arthrobacter, Mycobacterium and others), gram-negative rods (genera: Alcaligenes, Pseudomonas) and appendages bacteria (genus Caulobacter). The microfauna is presented by flagellates of Bodo and Monas genera and the infusoria of Opercularia, Vorticella, Epistylis genera. The constant content of the microflora and microfauna in the biocenosis of the activated sludge and the prevalence of nocardioforms and corynebacteria which contain many growth ***promoters*** confirms the expediency of using the sludge biomass as a microbial fertilizer.

L5 ANSWER 4 OF 84 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
ACCESSION NUMBER: 1997:179787 BIOSIS
DOCUMENT NUMBER: PREV199799471500
TITLE: Heterologous expression of biphenyl dioxygenase-encoding genes from a gram-positive broad-spectrum polychlorinated biphenyl degrader and characterization of chlorobiphenyl oxidation by the gene products.
AUTHOR(S): McKay, David B.; Seeger, Michael; Zielinski, Marco; Hofer, Bernd (1); Timmis, Kenneth N.
CORPORATE SOURCE: (1) Dep. Microbiol., Gesellschaft fuer

09/446681
AMM 21

=> s corallina
L1 2598 CORALLINA

=> s promoter?
L2 464493 PROMOTER?

=> s l1 and l2

L3 7 L1 AND L2

=> dup rem l3
PROCESSING COMPLETED FOR L3
L4 4 DUP REM L3 (3 DUPLICATES REMOVED)

=> d l4 ibib abs 1-4

L4 ANSWER 1 OF 4 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2000:457212 HCAPLUS
DOCUMENT NUMBER: 133:85125
TITLE: A chemically inducible expression system for eukaryotes using the OHP system of Rhodococcus
INVENTOR(S): Turck, Jutta Anna; Archer, John Anthony Charles
PATENT ASSIGNEE(S): Advanced Technologies (Cambridge) Ltd., UK
SOURCE: PCT Int. Appl., 117 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000039300	A1	20000706	WO 1999-GB4333	19991221

W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

CA 2356125	AA	20000706	CA 1999-2356125	19991221
EP 1141307	A1	20011010	EP 1999-962383	19991221

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO

PRIORITY APPLN. INFO.: GB 1998-28660 A 19981224
WO 1999-GB4333 W 19991221

AB A chem. inducible gene expression system for eukaryotes, esp. plants, that uses elements of the o-hydroxyphenylpropionic acid (OHP) utilization operon of Rhodococcus ***corallina*** (Nocardia ***corallina***) is described. The system uses a ***promoter*** regulated by the OHP-responsive transcriptional activator ohpR to activate expression through its cognate C1 element. The ohpR gene is expressed from a host ***promoter*** , which may be constitutive or regulated. Various domain regions and complementary response elements are also described.
REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 2 OF 4 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1999:42607 HCAPLUS
DOCUMENT NUMBER: 130:91274
TITLE: Engineering mycolic acid bacterial biosensors with ***promoters*** induced by specific analytes, and use for detection of pollutants
INVENTOR(S): Archer, John Anthony Charles; Summers, David Keith; Roland, Herve Jacquiau; Powell, Justin Antoine Christian
PATENT ASSIGNEE(S): Cambridge University Technical Services Limited, UK
SOURCE: PCT Int. Appl., 67 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9900517	A2	19990107	WO 1998-GB1893	19980629
WO 9900517	A3	19990514		

W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG

AU 9882253	A1	19990119	AU 1998-82253	19980629
EP 991778	A1	20000412	EP 1998-932307	19980629

R: DE, DK, ES, FR, GB, IT, NL, SE, PT

PRIORITY APPLN. INFO.: GB 1997-13666 19970627
WO 1998-GB1893 19980629

AB Disclosed are methods for generating mycolic acid bacterial biosensors for particular analytes (esp. industrial pollutants) by isolating DNA encoding an inducible ***promoter*** which induced in response to the analyte (and/or assocd. operon proteins). The method generally comprises the steps of: (a) culturing a source of mycolic acid bacteria in a selective medium contg. said specific analyte and being selective for oligotrophic bacteria; (b) identifying mycolic acid bacteria capable of subsisting on said medium, esp. those which do not display catabolic repression; (c) extg. DNA from said mycolic acid bacteria; (d) incorporating said DNA into vectors, such as various shuttle vectors; (e) cloning said vector into a suitable host cell (which may be E. coli strain carrying one or more of the mcrABC mrr hsdSRM recA and recO mutations); (f) screening that host cell (or a second host cell which is preferably a corynebacterium) for said inducible ***promoter*** . The methods are exemplified by the isolation of the R. ***corallina*** ohp operon. Also disclosed are assocd. materials, e.g. media, vectors, nucleic acid probes for performing the invention, and biosensors produced by the methods of the invention plus methods of use of the same.

L4 ANSWER 3 OF 4 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.DUPLICATE 1
ACCESSION NUMBER: 1995:77378 BIOSIS
DOCUMENT NUMBER: PREV199598091678
TITLE: Cloning and Characterization of a Nocardia ***corallina*** B-276 gene Cluster Encoding Alkene Monooxygenase.
AUTHOR(S): Saeki, Hisashi (1); Furuhashi, Keizo
CORPORATE SOURCE: (1) Pharmaceuticals Biotechnol. Lab., Japan Energy Co., 3-17-35 Niizo-Minami, Toda, Saitama 335 Japan
SOURCE: Journal of Fermentation and Bioengineering, (1994) Vol. 78, No. 6, pp. 399-406.
ISSN: 0922-338X.
DOCUMENT TYPE: Article
LANGUAGE: English
AB Alkene monooxygenase (AMO) of Nocardia ***corallina*** B-276, which consists of three components, epoxidase, reductase and coupling protein, catalyses the oxidation of alkenes to the corresponding epoxides. The

NH-2
terminal amino acid sequences of the large and small subunits of the epoxidase were used for the preparation of synthetic oligonucleotides as hybridization probes. A 6.4-kb BamHI fragment, which contained DNA sequences hybridizing to the probes, was cloned in Escherichia coli. DNA sequencing and comparison of the determined NH-2 terminal amino acid sequences identified a four-gene cluster, amoABCD, within this region. The
subunits of epoxidase (small and large), reductase and coupling protein were encoded by amoA, amoC, amoD and amoB, respectively. When the cloned
amoABCD gene cluster was placed under the control of a lac
promoter on a recombinant pUC18 plasmid in E. coli and induced
with isopropyl beta-D-thiogalactopyranoside, epoxidation activities were expressed. The amoABCD genes show a homology to the reported nucleotide
sequence for methane monooxygenase from methanotrophic bacteria. The existence of a conserved pair of the amino acid sequence Glu-X-X-His in the large subunit of epoxidase is consistent with the assignment of the epoxidase to the class of O-2-activating proteins containing diiron-oxo clusters.

L4 ANSWER 4 OF 4 WPIDS (C) 2003 THOMSON DERWENT
DUPLICATE 2
ACCESSION NUMBER: 1992-152474 [19] WPIDS
TITLE: Cloning and prodn. of nCOI restriction endonuclease and methylase - using DNA from nocardia ***corallina*** ATCC 19070.
DERWENT CLASS: B04 D16
INVENTOR(S): VANCOTT, E M
PATENT ASSIGNEE(S): (NEWE) NEW ENGLAND BIOLABS INC
COUNTRY COUNT: 5
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
EP 483797	A	19920506 (199219)*	EN		19
R: DE FR GB					
US 5202248	A	19930413 (199317)			14
JP 05192166	A	19930803 (199335)			22
EP 483797	B1	19950927 (199543)	EN		18
R: DE FR GB					
DE 69113390	E	19951102 (199549)			
JP 3217409	B2	20011009 (200164)			15

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
EP 483797	A	EP 1991-118511	19911030
US 5202248	A	US 1990-608228	19901102
JP 05192166	A	JP 1991-313555	19911101
EP 483797	B1	EP 1991-118511	19911030
DE 69113390	E	DE 1991-613390 EP 1991-118511	19911030 19911030
JP 3217409	B2	JP 1991-313555	19911101

FILING DETAILS:

PATENT NO	KIND	PATENT NO
DE 69113390	E Based on	EP 483797
JP 3217409	B2 Previous Publ.	JP 05192166

PRIORITY APPLN. INFO: US 1990-608228 19901102
AN 1992-152474 [19] WPIDS
AB EP 483797 A UPAB: 19931006
A DNA fragment comprising a nucleotide sequence encoding the NcoI restriction endonuclease produced by Nocardia ***corallina*** ATCC 19070 is new.
A DNA fragment comprising a nucleotide sequence encoding the NcoI methylase produced by N ***corallina*** ATCC 19070; recombinant vectors; host cell transformed with the vectors; a recombinant NCoI which recognises the sequence CCATGG obtd. from N, ***corallina*** ATCC
19070 and free of contaminants found in native NcoI prepns.; and prodn. of
NcoI by culturing the cells transformed host are also claimed.
USE/ADVANTAGE - NcoI restriction endonuclease and modification methylase are useful tools for characterising and rearranging DNA in the laboratory. The host strains expressing them are useful as they simplify the purificn. of the enzymes and provide a means for producing the enzymes
in commercially useful amts. The enzyme cleaves between the two C residues, leaving a 4 base 5' overhang
0/4
ABEQ US 5202248 A UPAB: 19931025
Isolated DNA encoding NcoI restriction endonuclease, isolatable from vector PEV19OR612-22C-29.
Also claimed are: a recombinant DNA vector comprising a vector contg.
a DNA sequence encoding NcoI produced by Nocardia ***corallina*** ATCC
19070; DNA encoding NcoI restriction endonuclease and methylase obtainable
from ATCC Accession No. 68457; a cloning vector comprising the DNA; or has
x cell transformed by the vector; and a method of producing NcoI.
USE/ADVANTAGE - NcoI is prepd. free of contaminants normally found in
conventional endonuclease prepns.
Dwg.0/5
ABEQ EP 483797 B UPAB: 19951102
An expression vector which expresses recombinant NcoI endonuclease comprising a DNA sequence coding for NcoI restriction endonuclease, wherein said DNA sequence is obtainable from N. ***corallina*** ATCC
No. 19070, and wherein said expression vector is obtainable by replacing the endogenous regulatory sequences of the endonuclease gene found immediately downstream of the NcoI modification enzyme encoding DNA by an
exogenous ***promoter*** and ribosomal binding site.
Dwg.0/4

=> d his

(FILE 'HOME' ENTERED AT 15:53:23 ON 08 APR 2003)

FILE 'BIOSIS, EMBASE, MEDLINE, WPIDS, HCAPLUS' ENTERED AT 15:53:33 ON 08
APR 2003
L1 2598 S CORALLINA
L2 464493 S PROMOTER?
L3 7 S L1 AND L2
L4 4 DUP REM L3 (3 DUPLICATES REMOVED)

=> s ohp or mac
L5 37885 OHP OR MAC

=> s l1 and l5
L6 2 L1 AND L5

=> dup rem l6
PROCESSING COMPLETED FOR L6
L7 2 DUP REM L6 (0 DUPLICATES REMOVED)

=> d l7 ibib abs 1-2

L7 ANSWER 1 OF 2 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2000:457212 HCAPLUS
DOCUMENT NUMBER: 133:85125
TITLE: A chemically inducible expression system for eukaryotes using the ***OHP*** system of Rhodococcus
INVENTOR(S): Turck, Jutta Anna; Archer, John Anthony Charles
PATENT ASSIGNEE(S): Advanced Technologies (Cambridge) Ltd., UK
SOURCE: PCT Int. Appl., 117 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO. KIND DATE APPLICATION NO. DATE

WO 2000039300 A1 20000706 WO 1999-GB4333 19991221
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU,
CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL,
IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA,
MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI,
SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ,
BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE,
DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF,
CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG
CA 2356125 AA 20000706 CA 1999-2356125 19991221
EP 1141307 A1 20011010 EP 1999-962383 19991221
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
IE, SI, LT, LV, FI, RO
PRIORITY APPLN. INFO.: GB 1998-28660 A 19981224
WO 1999-GB4333 W 19991221

AB A chem. inducible gene expression system for eukaryotes, esp. plants, that uses elements of the o-hydroxyphenylpropionic acid (***OHP***) utilization operon of Rhodococcus ***corallina*** (Nocardia ***corallina***) is described. The system uses a promoter regulated by the ***OHP*** -responsive transcriptional activator ohpR to activate expression through its cognate C1 element. The ohpR gene is expressed from a host promoter, which may be constitutive or regulated. Various domain regions and complementary response elements are also described.

REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 2 OF 2 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 1999:42607 HCAPLUS
DOCUMENT NUMBER: 130:91274
TITLE: Engineering mycolic acid bacterial biosensors with promoters induced by specific analytes, and use for detection of pollutants
INVENTOR(S): Archer, John Anthony Charles; Summers, David Keith; Roland, Herve Jacquiau; Powell, Justin Antoine Christian
PATENT ASSIGNEE(S): Cambridge University Technical Services Limited, UK
SOURCE: PCT Int. Appl., 67 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO. KIND DATE APPLICATION NO. DATE

WO 9900517 A2 19990107 WO 1998-GB1893 19980629
WO 9900517 A3 19990514
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE,
DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG,
KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX,
NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT,
UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES,
FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI,
CM, GA, GN, ML, MR, NE, SN, TD, TG
AU 9882253 A1 19990119 AU 1998-82253 19980629
EP 991778 A1 20000412 EP 1998-932307 19980629
R: DE, DK, ES, FR, GB, IT, NL, SE, PT
PRIORITY APPLN. INFO.: GB 1997-13666 19970627
WO 1998-GB1893 19980629

AB Disclosed are methods for generating mycolic acid bacterial biosensors for particular analytes (esp. industrial pollutants) by isolating DNA encoding an inducible promoter which induced in response to the analyte (and/or assocd. operon proteins). The method generally comprises the steps of: (a) culturing a source of mycolic acid bacteria in a selective medium contg. said specific analyte and being selective for oligotrophic bacteria; (b) identifying mycolic acid bacteria capable of subsisting on said medium, esp. those which do not display catabolic repression; (c) extg. DNA from said mycolic acid bacteria; (d) incorporating said DNA into vectors, such as various shuttle vectors; (e) cloning said vector into a suitable host cell (which may be E. coli strain carrying one or more of the mcrABC mrr hsdSRM recA and recO mutations); (f) screening that host cell (or a second host cell which is preferably a corynebacterium) for said inducible promoter. The methods are exemplified by the isolation of the R. ***corallina*** ***ohp*** operon. Also disclosed are assocd. materials, e.g. media, vectors, nucleic acid probes for performing the invention, and biosensors produced by the methods of the invention plus methods of use of the same.

=> s operon or orf
L8. 92098 OPERON OR ORF

=> s l1 and l8\
L9 0 L1 AND L8\

=> s l1 and l8
L10 11 L1 AND L8

=> dup rem l10
PROCESSING COMPLETED FOR L10
L11 7 DUP REM L10 (4 DUPLICATES REMOVED)

=> d l11 ibib abs 1-7

L11 ANSWER 1 OF 7 HCAPLUS COPYRIGHT 2003 ACS
ACCESSION NUMBER: 2002:394291 HCAPLUS
DOCUMENT NUMBER: 137:275556
TITLE: Phylogenetic relationships among streptophytes as inferred from chloroplast small and large subunit rRNA gene sequences
AUTHOR(S): Turmel, Monique; Ehara, Megumi; Otis, Christian; Lemieux, Claude
CORPORATE SOURCE: Canadian Institute for Advanced Research, Department de Biochimie et de Microbiologie, Universite Laval, Quebec, QC, G1K 7P4, Can.
SOURCE: Journal of Phycology (2002), 38(2), 364-375
CODEN: JPYLAJ; ISSN: 0022-3646
PUBLISHER: Blackwell Publishing, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB To gain insights into the phylogeny of charophytes and into their relationships with other green algae and bryophytes, we analyzed the chloroplast small and large subunit rRNA sequences of charophytes belonging to five orders (Charales, Coleochaetales, Desmidiales, Klebsormidiales, and Zygnematales), of chlorophytes from the four remaining classes of green algae, and of bryophytes representing the three classes reported in this group of land plants. We also probed the gene organization and intron content of the chloroplast rDNA ***operon*** in charophytes and bryophytes. The organization of this ***operon*** proved to be highly conserved, except in members of the Desmidiales and Zygnematales. Homologous group II introns were identified in the trnA(UGC) gene of all charophyte groups examd. and in the trnI(GAU) gene of charophytes from all orders except the Desmidiales and Zygnematales. Phylogenetic analyses of concatenated rDNA sequences consistently placed the prasinophyte Mesostigma viride Lauterborn at the base of the Streptophyta and Chlorophyta, although alternative topologies positioning Mesostigma within the Streptophyta could not be rejected. A sister group relationship was unambiguously established between Chaetosphaeridium